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CONTENTS.

An Asterisk (*) denotes an illustrated article.

OFFICIAL NOTICES—

Annual Meeting Central New York Association 249

Final Advance Announcement in Regard to the Ninth Annual Meeting of the Western Gas Association 249

EDITORIALS—

The "Passing" of the Gas Bills 250

The Kingston (Can.) Gas Company Mulcted on Account of a Death 250

Publication Delayed 250

Sixteenth Annual Meeting of the New England Association of Gas Engineers—Official Report—Concluded from page 222 251

Question Box—"Is it advisable to dispense with Sunday labor?"—"Is it possible to sell gas at $1 per thousand feet and pay dividends, without making coal gas, and in consequence having the residuals to assist in reducing the cost of manufacture?"—"A pipe eighty feet long is proposed to be added to an existing works as a substitute for a condenser. Can this be placed as satisfactorily before as after the exhauster?"—Second Day, Closing Session—Votes of Thanks—Adjournment.

Second Annual Meeting of the Ohio Gas Light Association—Official Report—Continued from page 226 253

The Comparative Values of Coals for Gas Making, by E. McMillin—Discussion—The Use and Relative Merits of Coke and Tar for Heating Retorts, by Jos. Light—Discussion—Gas Company Accounts, by A. B. Robinson.

Notes from the West, by Retort 257

Special English Correspondence 258

The Ipswich Tar Case—The Dublin Gas Directors—New Application of Gas as a Motor—The Southwest of England Association of Gas Managers.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES 259

Cheaper Gas for Springfield, Mass.—A Correction—Amending the Charter of the Pawtucket (R. I.) Gas Company—The Same Thing was done at Evansville, Ind.—The Portage American Gas Company—Election of Directors—The Alta Manufacturing Company, of Boston (Mass.) Rather Overdoes Itself—The Waukesha (Wis.) American Gas Company—Cheaper Gas for Newton, N. J.—Branching Out—The Price and Number of Street Lights in New York City—Another Gas Man on the Rostrum—Mr. Kelly's Estimate of the Value of his Vote—If the "Pole" Specifications are Modified—A Nashville (Tenn.) "Scientist"—Cheaper Gas for Rockford, Ills.

CORRESPONDENCE—

How a Leaky Holder Tank was Cured 261

Flood and Fire at the Selma (Ala.) Works 261

The Market for Gas Securities 262

[OFFICIAL NOTICE.]

Annual Meeting Central New York Association.

SECY'S OFFICE CENTRAL NEW YORK GAS ENGINEER'S ASSOCIATION, SYRACUSE, N. Y., April 24, 1886.

The Seventh Annual Meeting of the Central New York Gas Engineers Association will be held at the Powers Hotel, in Rochester, on Thursday, May 20th, 1886, at 11 A.M.

A cordial invitation to attend is extended to all members of the fraternity.

H. N. BABCOCK, Secy.

[OFFICIAL NOTICE.]

Final Advance Announcement in Regard to Ninth Annual Meeting of the Western Gas Association.

SECRETARY'S OFFICE, WESTERN GAS ASSOCIATION, QUINCY, ILL., April 26, 1886.

The Ninth Annual Meeting of the Western Gas Association will be held at the Neil House, Columbus, Ohio, on the 12th, 13th and 14th days of May.

As previously announced in these columns, the Neil House has been chosen by our local Committee of Arrangements as the headquarters of the Association. The hotel rates to members will be as follows: First floor, $4 per day; second floor, $3.50; third floor, $3.50 and $3—according to size and location of rooms; and fourth floor, $3. The business sessions will be conducted in an assembly room, well adapted for the purpose, within the hotel building, thus leaving nothing to be desired on the score of convenience. It would be an act of wisdom for our members to engage their rooms in advance, thus securing comfortable quarters for their reception beyond the possibility of a doubt. The unpleasant experiences of some of our late arrivals at past reunions should induce all to risk no chance for a repetition of like disappointments. When three lines of writing and a two cent stamp may contribute in such great measure to your comfort during your three days' stay in Columbus, it is a matter of surprise that all should not profit by the suggestion. In writing for rooms do not fail to inform the proprietor of the price you desire to pay.

Your Secretary is enabled to announce the following list of papers which will be presented for your consideration at the coming meeting:

"Some Experiments with Gas Burners," by Mr. B. E. Chollar.

"Mechanical, Magnetic, and Electrical Units," by Mr. E. J. King.

"Leakage," by Mr. E. H. Jenkins.

"Practical Ways of Meeting and Overcoming the Competition of Natura Gas as an Illuminant," by Mr. J. M. Critchlow.

"Draught," by Mr. John Gimper.

"Tar and Ammonia," by Mr. Geo. Shepard Page.

"The Gas Business: Its Opportunities and Requirements," by Mr. Edward Lindsley.

"Perfect and Imperfect Condensation," by Prof. S. H. Douglas.

"A Little More Natural Gas," by Mr. E. McMillin.

In addition to the above, several papers, as yet untitled, have been promised, so that there will be no dearth of literary pabulum for the entertainment of our members.

As to the social features of our ninth annual, it is sufficient to say that our tireless and irrepressible friend McMillin, the worthy chief of the Committee of Arrangements, has his weather eye open to our comfort and entertainment, and can be relied upon to pull the strings with a master hand. Should any suspicions to the contrary be entertained, they will be happily and effectually dissipated long before the hour for adjournment arrives. With regard to the banquet, it has been considered best that one should be served, on this occasion at any rate, as the replies to the circulars recently issued by your Secretary were so nearly unanimous in favor of the project that no other action could well be taken. Of course, it should be distinctly understood (if the point was not made sufficiently clear in the circular letter referred to) that no member is expected to attend the banquet unless it is his pleasure to do so, or to be assessed for any payment towards it; nor is any part of the expense to be defrayed by an appropriation from the Association's

treasury. In other words, "only those who dance are expected to pay the fiddler."

As this is the last formal communication which your Secretary will have an opportunity of making with respect to our Columbus meeting, he desires in closing to extend, in behalf of the Western Gas Association, a most cordial and hearty invitation to the members of all kindred societies to participate in our approaching reunion. The friendly hand of the "Western" is extended to you, gentlemen, and in no other way can you gratify us so much as by gracing our meeting with your welcome presence.

Very respectfully, A. W. Littleton, Sec'y.

[The thoroughness with which Secretary Littleton has performed his advance duties in connection with the Ninth Annual Meeting of the Western Gas Association may be relied on to have disarmed the critics who delight in captious displays; although to the credit of our American fraternity be it said but few such growlers exist with them. And to further exemplify the sturdy good sense which animates the Yankee gas maker, the stray growler is awarded that entire absence of attention which allows him an undisputed field wherein to nurse his woes; "master of all he surveys," no one attempts to encroach upon his domain. We are led to these few remarks through a casual glance at the whining and whimpering recently snarled out in England by one or two individuals whose limited mental capacity (some might attribute their action to malice) prevents them from understanding the fact—one which every member of the fraternity on this side of the Atlantic will at once and cheerfully concede—that the British Gas Institute is and has been one of the best examples of good government, as applied to technical societies, that can be instanced. Aside, however, from that consideration, and to return to the coming session of our own progressive Western Association, it is already beyond doubt that the Columbus gathering of May will be an important and successful conclave. It must not be forgotten that the special committee on State Legislation will present its report; and as we are in position to know how thoroughly the gentlemen of the committee have sifted the subjects involved in the premises, we expect that valuable developments and conclusions will accompany their official findings. It is expected that a more or less extensive exhibition of gas motors will be a feature of the convention. Handsome specimens of the Otto and Clerk engines are to be provided, and it is quite certain that the Korting type will also be represented. Possibly examples of other inventions in this field are to be exhibited; and if so, the combined display cannot fail to attract great attention. With every possible provision made for the comfort and convenience of the delegates and guests, it only now remains that those for whom all this precaution has been taken should respond in person to properly recompense the care-takers for the labor expended in the preparation. Unless the "master workman" orders a strike on the Pennsylvania system of roads, the Journal's representatives see no reason why they should not occupy quarters in the Neil House on the dates specified in the Secretary's circular; and, not to tell too many tales out of school, they have reason to believe that other "Easterners" see their way clear towards making a similar trip.—Ed.]

THE "PASSING" OF THE GAS BILLS.

Discussion at Albany on the multiplicity of gas bills now before the august inspection and awaiting the action of the law-makers, waxes warm; and, if the solons will excuse us the imputation, it has in fact assumed the confusing proportion usually attributed to that which is necessary to enthuse those who are delighted witnesses of feats performed in the acrobatic arena. There are bills and bills, measures and measures; and the last of these appears to be more idiotic than the sample which preceded it. One of the proposed enactments seeks to put a fixed figure upon gas charges in cities possessed of a certain specified number of inhabitants, while another charters a company, and bestows upon the new corporation the right to exact a 20 per cent. higher charge for gas than any one of the elder companies may ask and obtain in the same districts. The incongruities of the proposed legislation are such that one is almost tempted to exclaim against their absurdities, which are evident and patent; but afterthought quenches this impulse, simply because remembrance leads to the conclusion that courts of definition have not yet been legislated out of being.

It is certainly absurd to attempt to speculate upon what the Albany center of gestation may bring forth in the matter of gas laws; but of one product of the solons' travail we have full proof—the Standard Gas Company has been brought into existence, so far as the labors of the Senate and Assembly could quicken it. The gassy offspring resulting from the combined efforts of Messrs. Hagan, Grady, and Spinola comes into the world, and is possessed of extraordinary privileges. This "lucky hit" may roam at will over the nursing ground afforded by the blue-grass gas districts of the Metropolis, or it may never crop a single blade of the herbiage—either way in accordance with the precise manner which suits the schemes of its progenitors. In other words, those who control the Standard franchise may sell it, or they may elect (in case they cannot get the cash) to pipe the paying districts of the city.

At time of writing (April 27th) it does not appear possible that Governor Hill will affix his signature to the Standard charter; but even if he does, Messrs. Hagan, Grady, and Spinola are herewith notified that the Consolidated Company is in possession of all the charter parchments which it needs. Safe in its present position, both legally and morally, Mr. Bostwick and his allies have this time overshot their mark.

But aside from the sales value of the Standard charter, we would like to say a word or two in connection with certain gentlemen who made their appearance before Governor Hill (on the afternoon of April 22d), in an attempt to convince the executive that the measure ought to receive his official sanction. First came the obese and insignificant little trickster, yclept Grady; as a simple hireling or tool we will pass him as unworthy of notice. Number two reveals the presence of Gen. Spinola—he whose abundance of shirt collar alone entitles him to consideration. Mr. Spinola remarked that while he "didn't want to boast of his worldly possessions" (and we certainly hope he has more to boast of in them than in those that are to come after), he would put $100,000 into the Standard operation. The shirt collar hero further avowed that his nephew would put in a half million—of what the General forgot to say. He further intimated that "Mr. Sherman" would put in some money, and concluded by remarking that they "were men of nerve, and meant business." Men of nerve, General; why, certainly so. It would take a man of unshaken equilibrium to conjure up the name of Sherman as an assistant or aid to the fortunes of an unchartered gas company! Sherman—let us see if we can place him. Yes; his bill of health, presented by himself, to the Governor, betrays him. He says that he started companies in Yonkers, N. Y.; Atlanta, Ga.; Jersey City, N. J.; Boston, Mass.; and admits that he was kicked out of New Orleans, La., by the courts. If Governor Hill wants information in regard to Mr. Sherman he can have plenty of sources from whence to obtain it. Let him make inquiry of Mr. T. C. Cornell, of Yonkers; Mr. Wm. Helme, of Philadelphia; Mr. Victor Vallois, of New Orleans; Mr. M. S. Greenough, of Boston—all of whom are the peers of Mr. Hill in intelligence, honesty and straightforwardness—and the net result will be, if such a determination has not already been arrived at, that the Standard Gas Company's charter will remain unsigned.

THE KINGSTON (CAN.) GAS COMPANY MULCTED ON ACCOUNT OF A DEATH.

On the 28th of December, 1885, the Associated Press dispatches to New York city conveyed the intimation that two persons—a husband and wife—named Sharpe had been asphyxiated through an accidental inhalation of illuminating gas. The parties were occupants of a store and dwelling house located on Princess street, Kingston, Canada. When discovery of the sufferers was made, it was found that Mr. Sharpe had already succumbed to the poisonous dose, but his widow was finally restored to consciousness, and ultimately to her normal physical condition. Gas was not used in the Princess street house, and subsequent investigation proved that the gas which penetrated into the premises had slowly filtered through the soil—the original point of escape was traced to a broken 4-inch main underneath the roadway—until it reached the cellar wall of the Sharpe premises. The gas current traveled about 40 feet before making contact with the wall, and the latter (being far from sound and tight) offered no real bar to the progress of the gas flow. Toward the close of March, 1886, Mrs. Sharpe instituted suit against the Kingston Gas Company (the water gas system prevails there), and in her complaint asked that she be awarded the sum of $5,000, partly as compensation for the loss of the protection and aid afforded by her former husband, and partly on account of the suffering undergone by herself.

The case was called, on the morning of Wednesday, March 25th, before the Court of Assize and a jury, Mr. J. C. McIntyre, Q. C., appearing for plaintiff, the company being represented by Mr. Britton. Considerable testimony was taken, which bristles with interesting points; but owing to lack of space we cannot now enter into the details thereof. At the conclusion of testimony and arguments the magistrate submitted six questions of fact for the consideration of the jurors. After a lapse of two hours the jury returned a verdict to the effect that the gas company had been culpably negligent, and awarded plaintiff damages in the sum of $700. The magistrate, in entering the verdict, remarked that he thought "the company was bound to keep the dangerous stuff within control." This is an important finding, and we hope to speedily publish a more complete account of the case. Perhaps those philanthropical speculators who insist that "a life or two" should not be allowed to stand in the way of the introduction of a "boon to others of the human race," may speedily be made to feel that "death charges" are likely to figure as important items in their distributing account.

Publication Delayed.—Shortly before going to press we received a most interesting letter from Mr. T. S. Cleminshaw, Engineer to the Launceston Gas Company (Tasmania, off Australia), in reference to the subject of driving exhausters by gas motors. It will appear in our next.

[Official Report—Concluded from page 222.]

Sixteenth Annual Meeting of the New England Association of Gas Engineers.

Held at the Narragansett Hotel, Providence, R. I., Feb. 17 and 18.

First Day—Afternoon Session.

Question Box.—Continued.

The President—The next question—

"*Is it advisable to dispense with Sunday labor?*"

—will now occupy our attention.

Mr. Harbison—To that I say, "Yes." Do you want any further explanation?

The President—Those who take the other view might like to hear something further.

Mr. Harbison—I say that it is advisable to dispense with Sunday labor, to the extent mentioned by the President in his address—*i. e.*, for 12 hours instead of 24. I may say I do not think, as a result of our practical Hartford experience in this matter of attempting to observe the Sabbath—an experience which has extended over some years—it wise to attempt to dispense with labor for more than 12 hours of the 24; but repeat that I am entirely satisfied of the wisdom of the 12-hour dispensation. Occasionally, during the summer season, we have run 16 hours of the 24 without charging our retorts. I can, perhaps, from experience state, in regard to the point about which the President was in doubt—as to whether or not the retorts suffered injury in consequence of remaining idle for 12 hours—that ours have not been injured. Our custom is to slack the lids one-half inch, and also allow the coke to remain in the retorts until charging time. We think that practice tends to diminish the liability to carbon deposit; and by retaining the coke we keep up the heats. The combined effect of the two items prevents the retorts from injury. To my mind many reasons exist for dispensing with unnecessary Sunday labor. First of all, I do not think it is right to work on the Sabbath; and I do not believe that in the average gas works such labor is necessary. Of course, in works without holder capacity sufficient to accumulate, through the other six days of the week, enough gas for the demand that will be made upon the plant on Sabbath evening, Sunday labor is a necessity. The gas sent out on Sundays is, as a rule, rather more than one-half of that sent out on the other days of the week; therefore, some gas would have to be accumulated during those six days in order to make up the difference between the quantity made in the 12 working hours and that consumed in the 24 hours of the seventh or Sabbath day. I think the retort house men will do much better and more efficient work if we grant them rest on the Sabbath. Indeed I think it is impossible for the man who is continuously at work on every day in the year to do as efficient work as the one who has his day of rest each week—as all should have. Taking that view of it, I think, if we observe the Sabbath in the retort house, we can make just as much money as though we kept up the labor through the entire seven days—in fact, I have no doubt of it. We commenced this mode of working at Hartford over 20 years ago, and we have endeavored to live up to it faithfully. I do not claim we have always succeeded in doing so, for there were times when (owing to some unforseen cause) we have been obliged to make gas on the Sabbath; but such times have been rare exceptions. I am entirely satisfied that it is a wise course to pursue; and I believe every gas man can pursue that course if he will set about it in the right way. If there is deficiency in holder room, those so situated will soon see their way made clear to remove that defect. I am convinced that it is better for the men—and the labor problem is a more important matter than it was years ago—in all places where considerable numbers of them are employed. I think we ought to pay some attention to their condition. At Hartford we pay our men by the week; and if a man is absent from duty one day his weekly pay is decreased by one-seventh of its total. The men lose nothing from their pay because they are not at work on the Sabbath. Our custom (when we are running 12 or 14 benches) is to require the services of two men to keep up the fires and to care for the premises on Sunday.

Mr. Stiness—Then you do "sin" a little.

Mr. Harbison—We try to reduce it to the minimum. It would hardly do to leave the property unguarded—you would certainly not desire to leave your house unguarded! If you leave town in the summer you require a watchman or someone else to look after your house occasionally. Of course, every gas man knows it is necessary to keep the heats up, and that if the fires are left unattended for 12 hours the heats will go down and injure the benches. As I said, we reduce the labor to the minimum. When the charges are drawn off the men strike the lids, and close the dampers, to prevent undue waste of fuel. At about the proper time for recharging the dampers are opened, and if the heats have gone down a trifle, it is an easy matter to bring them up by charging with hot coke from the retorts.

Mr. Gerould—How many extra benches do you have running?

Mr. Harbison—I do not think we run an extra retort. I think we can make as much gas in 6 days and 12 hours as we can in 7 days of 24 hours.

Mr. Stiness—I would like to ask Mr. Harbison if his men receive the same pay, for working 6½ days, as they would get if they worked seven days?

Mr. Harbison—They do; we make no deduction.

Mr. Allyn—Will Mr. Harbison inform us as to the average life of his retorts?

Mr. Harbison—I cannot give a definite answer to that, as I have not kept a record until within a year or two. I apprehend I get from four to five million cubic feet of gas per retort. I do not think our retorts burn out before they have been from 15 to 17 months in use.

Mr. Rollins—Do the two men on duty all through Sunday get more pay than the men who are away?

Mr. Harbison—We do not pay them any *less* than we do the absent ones. When running gangs of 12 or 14 men on the fires the men take their turn for Sabbath work, and they know when their turn will come. Our custom is to take the top and bottom men of the gang, and have them come in together; next Sabbath the second men from top and bottom of the list are paired off. This style of rotation being kept up, the men first called on will not be again required for Sunday work until the lapse of, say, six weeks.

The President—Will Mr. Nettleton give us his experience?

Mr. Nettleton—I am glad to say that on this subject Connecticut is harmonious. I commenced about two years ago to do away with Sunday labor. I asked my men if they would not like to stop work during 12 hours on Sunday. They replied they would very much appreciate it. From that period to this we have never worked during daytime on Sunday, except as a matter of absolute necessity. Probably out of the 52 Sundays in the year there may be five or six when Sabbath work is necessary. The night men go off on Sunday morning, and one man comes on, but he merely looks after the place. He does not work, except to keep the fires up and keep steam up in the boiler. Practically it is a holiday to him, or a rest day at least, although he is confined to the gas works yard. I have noticed since that time the men have taken more interest in their work. They saw I was trying to do what I could, in that way at least, to make their lives as easy as possible. I know that they appreciate it. It seems to me, aside from any question about whether it will or will not pay, there is a duty which we owe to the men who are under us. If we were like them, tied up at the gas works 12 hours per day for 365 days in the year, how long would we be content with our lives? It seems to me that we are able, at a very small cost to ourselves—I think at no cost at all, and if there is any it is very small indeed—in this way to do a great deal of good. We can bring a great deal of happiness into the lives of our men, and I think we owe it to them to do so.

The President—I think so too. When we made the change in our works last summer we were not actuated by any very high motives in the matter. The chief reason why we did it was to give employment to a few more men.

Mr. Stiness—The Boston Gas Company are humanitarians!

The President—We never could have said that of the Pawtucket Gas Company. (Laughter.) Last summer was the first season that we had our new works in operation; and at the new plant we employed none of the old hands. We did not wish to move them out there with all the ruts they had grown into—we preferred to start afresh. Of course, we were making very much less gas in the old works, and that threw a great many out of work. We have men in our employ who have been with us for 20 or 30 years. They know no other business; and we have always kept those men on in the summer. Of course, the omission of Sunday labor made a difference in the expense of about 7 per cent. By not working on Sunday we could employ a certain additional number of men, who could thus have a chance to work through the summer months; and we preferred to give them a chance to do it, rather than work Sundays through the hot summer weather. As we got along into the fall we continued the practice, and found that the men liked it a good deal better. We do not carry our kindness to the men as far as Messrs. Harbison and Nettleton do, because we cut their wages down. If they only work 6½ days they get paid for only 6½ days. I find they are glad to give up that half day's pay for the sake of having their leisure on Sunday. There is one thing to be said in its favor. We have always found every winter, and I suppose it is the experience of everybody making gas to a large extent on Sundays—filling up the holder on Monday morning, using gas all through the week, and trusting to the next Sunday to make it up—that we sometimes come pretty near to getting caught in the last part of the week, and find ourselves short of gas. As we run at present we expect to make as much gas on every fair day as we shall burn, and not lose anything. Then on rainy days we have a surplus stock on hand. We always carry a number of extra retorts which we charge in very bad weather. On Sundays we still gain somewhat, and make up what we have lost in the rainy days during the week, because we have our Sunday night make at the North End and our day make at Commercial Point, which are more than our Sunday consumption. We have found it a convenience to ourselves—leaving the

men out of the question—to work in that way. It has cost us no money, and at the same time it has been a benefit to the men.

Mr. Nettleton—We do not pay the same wages where the men do not work on Sunday. We commenced ten years ago to pay the men by the hour, and they are paid by the number of hours they work, and no more.

The President—Then it is only Mr. Harbison who is guilty of that virtue.

Mr. Harbison—I hope the Association will not lose sight of this question. The more we favor the men the better they will work for us. There can be no question about that. I know from our experience we have a very much better class of men than we had before we went into this business of the observance of the Sabbath. We propose to give our men quite as much attention personally as the average gas manager does; and that may have something to do with it. But I do really think that the men do better in every respect.

Mr. Gerould—I would like to ask Mr. Harbison what he would do in my place. I have 600,000 cu. ft. holder room. On Saturday my send-out is 200,000; on Sunday it is 100,000; and on Monday it jumps to 500,000.

Mr. Harbison—That is very easily explained. If Mr. Gerould has storage capacity for 600,000, and his heaviest consumption is but 500,000, I do not see any difficulty. If he has not got enough holder room, then he of all the men in this Association should not ask what the remedy would be. All he has to do is to make a contract for a new holder; and he knows where the money is with which to pay for it.

Mr. Gerould—On Tuesday and Wednesday we send out perhaps 450,000 or 500,000 cu. ft., and by Saturday night my holder is flat.

The President—How much do you send out on Saturday?

Mr. Gerould—We generally drop down to 200,000 on Saturday.

The President—You do not burn so much on Saturday as on Monday?

Mr. Gerould—Nowhere near it.

Mr. Harbison—Then there is no excuse at all for Mr. Gerould to make gas on Sunday, for the consumption on Saturday night is only half of his ordinary consumption.

The President—Why can he not have his holder full on Sunday?

Mr. Harbison—Certainly he can. He has plenty of room to store it, and it is better for him to shut down on Sunday.

Mr. Gerould—The practice at Manchester has been to determine the average gas consumption for the week, and to carbonize for that average. If we were obliged, by reason of stormy weather, or any other cause, to send out more gas, we draw upon the supply which we have made on Sunday to meet that deficiency. If we did not have that supply on hand our holders would drop if two or three rainy days happened in succession.

The President—That is the ordinary practice. But suppose you made every day as much as the ordinary consumption amounted to, and left your holder full Saturday night; then you would be all right. You would have to make the same quantity of gas, but you would make it in 6½ instead of 7 days; and instead of running 13 benches you would run 14.

Mr. Gerould—But that means an extra expense for the bench, and an extra expense for another holder.

The President—It would be the extra expense of the wear and tear of that one bench only.

Mr. Harbison—I think it would be found that the men would make as much gas in 6½ days as they would in 7 from the same number of benches.

Mr. Gerould—Does Mr. Harbison in running under his system change his gangs every week?

Mr. Harbison—Yes.

The President—The next question is—

"Is it possible to sell gas at $1 per thousand feet and pay dividends, without making coal gas, and in consequence having the residuals to assist in reducing the cost of manufacture?"

Mr. Nettleton—I am sorry to do so much talking, but I am the father of that question, and I perhaps should explain why it was asked. Mr. Rollins in his paper said he had gone on to water gas because he could not dispose of his residuals. Then, further on, the question came up of how we can make and sell gas for $1 a thousand and pay dividends. It seems to me if we are ever going to do that we must stick to coal gas, and make the most of our residuals. We cannot afford to give them up. If we are going to make water gas, and use 4½ gallons of naphtha at 5 cents per gallon, then we must pay 22½ cents for the naphtha alone; and this added to the labor, purification, and distribution will bring us above the figure at which gas can be sold at $1. But I do believe there is a chance in the manufacture of coal gas to so work up the residuals as to obtain enough money from them to permit us to sell gas for $1 per thousand. You know that abroad they are getting 80 per cent. and more of the cost of the coal back from the sale of residuals. I know of a company in this country that last year got 55 per cent., and this year will get 60 per cent., of the cost of the coal in residuals. It has been done by constant effort in the way of increasing the sale, and selling to the very best advantage. I believe it is only in that direction we can hope to get the price of gas down.

The President—I believe so, too. If any gentleman wishes to controvert that proposition we shall be happy to hear from him. Mr. Rollins, do you wish to take issue with that?

Mr. Rollins—I do not wish to take issue in the matter at all. I simply gave some figures to-day as the result of what I had done in that line the last year. If there is not a chance to make a dollar out of it, I do not expect to make it; but if there is, I think all of you will "skip" the ten per cent. carbonic oxide matter if the law don't require you to stick to it.

Mr. Stiness—Across the water, where gas is sold so very cheap, is it not the fact that they receive a very large sum for the residuals obtained in the manufacture of coal gas; and if so, about what per cent. of the cost of the coal?

The President—I think that has varied a good deal in the last few years. I think their residuals have considerably fallen off in value—notably their ammonia and tar. I know that in some parts of England they get back very nearly the whole cost of their coal; that is, the gas costs them very little beyond distribution.

Mr. Harbison—I think there is another point to be considered. In cutting down the selling price of gas, and still be able to pay dividends, we must not lose sight of the fact that if we can by a reduction in the price largely increase our sales, the cost of distribution is largely diminished. That will help to pay a dividend on a low selling rate of gas, as well as give us an income from the residuals. Increased sales reduce the cost of distribution.

The President—There is one thing very sure; which is, that if it is possible to sell gas for a dollar a thousand, and pay dividends, it has not been done anywhere, so far as I know, with water gas; whereas it is now being done in Chicago on coal gas. Here is another question—

"A pipe eighty feet long is proposed to be added to an existing works as a substitute for a condenser. Can this be placed as satisfactorily before as after the exhauster?"

We shall be glad to hear from somebody on that subject. Mr. Thomas, what is your judgment about it?

Mr. Thomas—I think that perhaps a trifle greater cooling effect would be gained if the pipe were placed after the exhauster rather than before it. So far as condensation is concerned, I do not think the plan would make much difference. My opinion is that the exhauster ought to be placed as close as possible to the hydraulic main. It is the pressure on the hydraulic main that you want to control; and when it comes to condensing, you should do that in the condensers. I should certainly place the pipe asked about after the exhauster. The greater the number of "turns" which the gas is subjected to in its passage through the apparatus the more friction is caused, and excessive friction means undue condensation.

The President—My judgment would be the same as that of Mr. Thomas. I would put the pipe in after the exhauster. I believe we have now got to the end of our list of questions.

At this point the Association adjourned to following morning.

Second Day—Closing Session.

The Association assembled at 10 A.M. on Friday, Feb. 18. The President called for a report from the Committee on Obituary Resolutions. Mr. Stiness (chairman) reported that the committee had been unable to collate the facts in reference to the life's work of their deceased fellow-member (Mr. W. J. Miller, of Bristol, R. I.), and asked permission to "report in print" at a later period. President Greenough authorized the Committee to report in the manner suggested; and then inquired if any further business was to occupy their attention.

Votes of Thanks.

Mr. Stiness thereupon arose and said: Now that our sessions are about to be adjourned, I deem it my duty and also feel it a pleasure to call your attention to the fact that those who have not occupied the office of President of this Association cannot fully appreciate its duties and responsibilities. During the past two years the Chair has been occupied by one who has graced that office in a rare manner, and I feel it to be a duty which we owe to ourselves to formally express our high appreciation of his services. I therefore move that the thanks of the Association be tendered to Mr. Malcolm S. Greenough for the very able manner in which he has presided over our deliberations in the past two years.

The motion was seconded by Mr. Slater, and the President-elect, Mr. Jno. P. Harbison, placed the question before the Association. The resolution of thanks was unanimously adopted by a rising vote. When the applause which greeted the announcement had subsided—

Mr. Greenough said: I have occupied such portions of your time during the past two days that you can hardly expect me to say much at present. I am gratified if, in presiding over your meetings, I have served you as you wished to be served. The office carries with it an honor which any man may well appreciate; and I am proud of your assurance that I have performed the duties of the office to your satisfaction. The position has been a source

of very great pleasure to me in many ways. The more frequently we can come together, and the better the members of this Association know one another, the better we like each other and the more profitable are our meetings. I think that the relations which have existed between the members of the Association and the profession in the last five years have tended most strongly to draw us together. I trust that those relations will continue and remain not only as pleasant and intimate as they have been, but will become more and more so in the years that are to come. I thank you very much for the vote which you have just passed.

Mr. Sherman then took the floor and remarked: I think the opening remarks made by Mr. Stiness when moving a vote of thanks to Mr. Greenough will also apply to the occupant of the Secretary's desk. An immense amount of work rests upon the Secretary's shoulders; and from personal experience I can speak of the untiring zeal with which Mr. Nettleton has labored to cause this meeting to become the interesting occasion which it certainly has proved to be to all of us. I therefore wish to offer a motion (one that will be heartily seconded by every member here present) to the following effect: That the thanks of this Association be presented to our Secretary for his energetic and very successful efforts in making this meeting the pleasant and profitable occasion which it has been to each one of us.

The resolution, seconded by Mr. Stiness, was placed before the Association by President Greenough, and heartily endorsed in the affirmative by the members.

In reply, Secretary Nettleton said: I am pleased and gratified that you think well of my efforts. I certainly have tried to make the meeting a success, and I am very much pleased at your verdict that it has been successful. I have, however, to return my thanks for the kind and very prompt way in which those who furnished papers have responded to my requests. These gentlemen have seemed most willing indeed not only to furnish papers but to do all in their power to make the meeting a successful one. If it has been a success it is due to their thorough work rather than to any efforts of my own.

On motion of Mr. Stiness, the 16th annual convention was declared adjourned.

[Official Report.—Continued from page 226.]

Second Annual Meeting of the Ohio Gas Light Association.

Held at the Arcade Hotel, Springfield, Ohio, Mar. 17 and 18, 1886.

First Day—Afternoon Session—March 17.

Mr. Emerson McMillin here read his paper on—

THE COMPARATIVE VALUES OF COALS FOR GAS MAKING.

To determine the value of any particular coal for gas making, several points must be considered. First, convenience to market; second, quantity and illuminating power of gas to be obtained from the coal; third, character and weight of coke; fourth, freedom from impurities.

The first point is one of great importance. Coals from mines located along navigable streams and waterways have a great advantage in the matter of transportation over coal that must be shipped by rail. Youghiogheny coal is carried down the Ohio river for a distance of 500 miles before it reaches the largest market of our State, at a less cost than coal transported by rail from the great coal fields of Hocking and Perry counties, although the latter are distant only 120 to 180 miles from the same market.

The second point of consideration is not of less importance than the first. Coal yielding 4 feet to the pound is not worth four-fifths the value of a coal that yields 5 feet to the pound. The use of the richer coal reduces the cost of necessary plant, labor in retort house, wear and tear of retorts, and the consumption of coke for fuel. The illuminating power being the same, and the value of the richer coal being placed at $2.20 per net ton at gas works, then the value of the leaner coal will not exceed $1.50, and probably not $1.40—especially to small works, or those not using or disposing of their ammoniacal liquor. But, as a rule, the richer coal gives gas of a higher illuminating power than does the leaner article. Coal giving a high candle power gas often possesses great value—even when giving an inferior coke, and a not extraordinary yield in quantity—in this, that it may enable the gas works to use a poor coal, or a coal that makes a low candle power gas, but which (from its nearness or convenience to the works) can be obtained, relatively, much cheaper than good gas coal.

General figures and calculations cannot be given that will be of much value or interest to works in any particular locality; but with the number of gas works located in the coal producing territory of this State it would seem that, by a proper admixture of the local coals (that can be obtained cheaply) with cannel, or with Youghiogheny coal, the net cost of coal per annum might be much reduced in many Ohio works.

Weight and character of coke ranks third in determining the value of gas coals. In both quantity and quality of coke produced per ton Ohio coals are generally inferior to the Youghiogheny coal. The Pittsburgh seam in Ohio gives a coke inferior only perhaps in the quantity of sulphur it contains; and also, possibly, a slight excess of ash.

The number five seam of Southern Ohio gives a coke very similar in appearance to that from Youghiogheny, but carries so much sulphur as to make it useless for many purposes in which good coke may be employed. Number six seam gives a lighter and more pulverulent coke, containing more sulphur than does the Youghiogheny gas coke. Its structure is such as to cause it to be consumed with greater rapidity, producing intense heat, and fluxing the ash to a greater degree than is the case with Youghiogheny grade.

The fourth and last general point to be considered in determining the value of any particular coal for gas making is its impurities. The term impurity is here used in the sense that is usually applied in the gas works of the United States; and, particularly in the smaller works, referring to the sulphur compounds—sulphuretted hydrogen and bisulphide of carbon.

An analysis for total quantity will not always determine the question whether a coal contains too large a percentage of sulphur to admit of its being profitably used in gas making. The gas product from two coals containing equal percentages of sulphur may in one case be easily purified, while the other will be foul and hard to purify; but the question of purification is one of much less importance now in determining the value of coals than was the case a few years ago. The general adaptation of the various forms of oxide of iron, together with the aid of improved scrubbers, have so reduced the cost that the expense of removing sulphuretted hydrogen has become almost nominal.

Coals having no definite composition, and coals of almost identical composition (as ascertained by ultimate analysis), giving totally different results when distilled in a gas retort, render it impossible to lay down any positive rules for judging a good gas coal by its analysis; but it is safe, perhaps, to say that the gasmaker should choose the coal that contains the largest per cent. of hydrogen and the smallest per cent. of oxygen. While it is well known that the combustion of hydrogen at the ordinary pressure of gas consumption results simply in producing a blue flame without light, and it is equally certain that the light of the gas flame is produced by the incandescence of the carbon of the gas, still, as before stated, the best gas coals are those which contain the largest percentage of hydrogen—and the less oxygen the better.

The larger the per cent. of hydrogen that coal contains the greater the quantity of carbon that can be volatilized; and the combustion of the hydrogen at the tip of the gas burner is necessary to produce the proper degree of temperature in the carbon to give us the incandescent light, and to eventually promote the ignition of carbon and its conversion to carbonic acid by its union with oxygen of the air, thereby preventing the escape of free carbon, and the creation of smoke and deposition of soot.

Coals used in gas works of this and other countries vary in quality from one grade, yielding 6,000 feet, to the net ton, of 13-candle gas, up to 12,500 feet of 131-candle gas—the latter coal, if coal we are permitted to call it, being known as the Hartley mineral of New South Wales—the one yielding 39-candle feet to the pound, the other yielding 829-candle feet to the pound. The Albertite of Nova Scotia will yield 13,000 feet, to the net ton, of nearly 50-candle gas; or 330 candle feet to the pound. Grahamite, of West Virginia, 13,500 feet of 28-candle gas, or 189 candle feet.

I am persuaded to believe that coals are not always correctly valued for gas making. For instance, one coal will produce four feet of 14.5 candle gas; and another will give off 4.40 feet of 16-candle gas. Now, if the two coals produce about the same weight and character of coke, it is quite a common error to rate the second coal as about 10 per cent. better than the first. As the object to be attained in the decomposition of coal is light, a simple calculation will show the fallacy of such rating:

$4.40 \times 16 = 70.40$ candle feet.
$4.00 \times 14.5 = 58.00$ " "

Difference, 12.40 candle feet, or 17.61 per cent.

The mistake is often made of assuming that because the proximate analysis of any particular coal shows it to contain a large per cent. of volatile matter, that, therefore, it will make a large quantity of gas. This does not follow, as is proven by the subjoined table made up from the analyses (by Prof. Wormley) of different Ohio coals:

No.	Volatile Combustible Matter.	Fixed Gas, cu. ft. per lb.
1	28.90	3.36
2	29.10	3.12
3	29.20	3.11
4	30.70	3.51
5	35.20	3.42
6	36.75	3.16
7	37.20	3.12
8	38.80	3.03
9	88.80	3.16

No. 8 contains 26 per cent. more volatile combustible matter than No. 4, and yet it affords 15 per cent. less gas. These analyses were made in a laboratory 15 years ago, and the yield of gas is less than would now be obtained from the same coals carbonized in gas retorts under temperatures equal to those at present carried.

The question is frequently asked, "What is the best and cheapest material with which to enrich gas?" No answer to that question can be given that will have a general application. If Youghiogheny coal is cheap, comparatively, and there is a good demand for gas coke, then the cheapest mode of enriching the gas is to draw your ch rges of coal from your retorts before the charge is entirely coked.

We can construct a formula that will at least give an approximate idea of results in an attempt to increase the illuminating power by heavier charging, or by diminishing duration of charge. Thus—

$$\frac{q\,c}{c'} = x.$$

In which q = known quantity of production;
c = known candle power;
c' = required candle power;
x = quantity of gas that coal will make of the required candle power.

Example.—One ton Youghiogheny coal will produce 10,000 cu. ft. of 16-candle gas. We want to increase candle power to 17.5. What quantity of gas of that quality will the coal make?

$$10{,}000q \times 16c = 160{,}000 \div 17.5c' = 9{,}143 \text{ cu. ft.}$$

Again, we increase our heats, make lighter charges, or keep coal in retorts longer, and reduce candle power to 15 instead of 16; then, about how much gas will the coal make?

$$10{,}000q \times 16c = 160{,}000 \div 15c' = 10{,}667 \text{ cu. ft.}$$

If cannel coal can be had with but little advance in cost over Youghiogheny coal, and you can dispose of its coke product at a good price, then that may be an economical enricher. Where there is but a poor demand for coke, and Youghiogheny coal is high in price, then perhaps naphtha may be economically used. Except at a few localities favored with very low prices for Youghiogheny coal, cannel coal will be found the best enricher for use in our Ohio gas works, as this coal can be had at from $3 to $4 per net ton.

One or two examples will suffice to show the result of mixing cannel with lean coal. Mixing coal that will produce 9,000 cu. ft. of 16-candle gas with a cannel that will produce 10,000 cu. ft. of 20-candle gas, in the proportion of three-quarters of the first to one-quarter of the second, will give 9,250 cu. ft. of 17.08 candles per ton of the mixture. The calculation may be made thus:

$$\begin{array}{rrr} 3 \times 9{,}000 = 27{,}000 \times 16 = 432{,}000 \\ 1 \times 10{,}000 = 10{,}000 \times 20 = 200{,}000 \\ \hline 4 \qquad\qquad 37{,}000 \qquad\qquad 632{,}000 \end{array}$$

$37{,}000 \div 4 = 9{,}250$ cu. ft. $\qquad 632{,}000 \div 37{,}000 = 17.08$ candles.

Again, seven-eighths of one coal producing 10,000 cu. ft. of 16-candle gas mixed with one-eighth of cannel producing 10,000 cu. ft. of 30-cannel gas will give 10,000 cu. ft. of 17.50-candle gas for the mixture. Thus—

$$\begin{array}{rrr} 7 \times 10{,}000 = 70{,}000 \times 16 = 1{,}120{,}000 \\ 1 \times 10{,}000 = 10{,}000 \times 30 = \quad 300{,}000 \\ \hline 8 \qquad\qquad 80{,}000 \qquad\qquad 1{,}420{,}000 \end{array}$$

Treat as above for quantity and candle power.

The lean coals of Ohio show up both good and bad points. First, they produce little or no carbon. We have been running retorts at Columbus for nearly seven months without burning out carbon; and there is but little carbon now in them. We have used, in these retorts, local or lean coal about one-half the time. The retorts are set over deep gas furnaces, and can produce 9,000 feet per mouthpiece per day when using Youghiogheny coal. You will, therefore, understand that our heats are high enough to make carbon.

Again, the lean Ohio coals do not produce much, if any, naphthaline; while with the heats at which we run our retorts the gas from Youghiogheny coal gives us great trouble. When using the latter coal, during the past five months, the question of when the purifiers should be changed has been determined, not by the second box becoming foul, but by back pressure in the boxes and center-seal caused by deposited naphthaline.

Again, the local coals will produce 25 per cent. more ammonia per 1,000 cu. ft. of gas made than does the Youghiogheny coal.

On the other hand, the lean coals produce much more CO and CO_2, make a lighter and more pulverulent coke, and a larger per cent. of coke is required to maintain heats.

I have prepared and here present a table showing the relative values of various coals used in the Columbus gas works, in which the advantages and disadvantages that I have mentioned are reduced to figures, and thus made more comprehensible.

TABLE SHOWING COMPARATIVE VALUES OF COALS.—*Debits.*

Reference Number.	Price per *Net* Ton.	Yield of Gas in Cu. Ft. Per Ton.	Tons Required to Produce 150 Million Cu. Ft. of Gas.	Cost of Coal to Produce 150 Million Cu. Ft. of Gas.	Cost of Purifying.		Cost of Retorts.		Wear and Tear, Tools, Water, Etc.		Wages.		Aggregate Cost.	
					Per ton.	Total.	Per Ton.	Total.	Per Ton.	Total.	Per Ton.	Total.	Per Ton.	Total.
1	$2 20	10,000	15,000	$33,000	5 00 cents	$750	10 cents.	$1,500	20 cents.	$3,000	$1 60	$24,000	$4 15	$62 250
2	2 00	9,300	16,135	32,270	4.65 "	750	10 "	1,613	20 "	3,227	1 60	25,81C	3 94 +	63,676
3	1 65	8,400	17,855	29,461	8.50 "	1,518	10 "	1,786	20 "	3,571	1 60	28,568	3 63½	64,904
4	1 55	8,000	18,750	29,066	8.00 "	1,500	10 "	1,875	20 "	3,750	1 60	30,000	3 53	66,187

TABLE SHOWING COMPARATIVE VALUES OF COALS.—*Credits.*

Reference Number.	Weight of Coke from One Ton of 2,000 lbs. of Coal Pounds.	Weight of Coke Used and Lost in Slack. Pounds.	Value of Coke Sold at $3 per Ton.		Value of Tar at Three Cts. per Gal.		Value of Ammoniacal Liquor.		Aggregate Credits.		Deducting Credits from Debits.	
			Per Ton Coal.	Total.	Per Ton.	Total.	Per Ton.	Total.	Per Ton.	Total.	Cost Per Ton.	Total Net Cost.
1	1,300	520	$1 17	$17,550	30 cents.	$4,500	10 cents.	$1,500	$1 57	$23,550	$2 58	$38,700
2	1,250	525	1 09	17,545	30 "	4,840	10 "	1,614	(nearly) 1 49	23,999	(nearly) 2 46	39,677
3	1,200	540	99	17,676	30 "	5,356	10 "	1,786	1 39	24,818	2 24½	40,086
4	1,200	540	99	18,562	30 "	5,625	10 "	1,875	1 39	26,062	2 14	40,125

One would most probably conclude, from the net results given in the above table, that it would not pay to use any of the cheap coal at $1.55 when the best Youghiogheny can be had at $2.20. Such a conclusion would be erroneous. To illustrate this, we will assume that your works are sending out, during the very dark weather in the winter months, 600,000 cu. ft. of gas per day. Sixty tons of Youghiogheny coal would be required to make this quantity of gas, which, at the price given in the table, would cost $132. If you are sending out about 600,000 feet during cloudy weather, you will not send out more than 500,000 feet on a clear day, or on Sunday. Then, without any additional expense for wages, or for retorts, or for wear and tear, you can make this out of the cheap coal, which will cost you but $100, and you thereby save in coal $32 that day, without any increase in other ex

penses. During February and March about one-half of the days will be clear.

These same figures will apply with equal force where the street lamps are lighted to correspond with the phases of the moon. The capacity of your works, in labor and retorts, must be equal to the demand when the lamps are burning all night; and if so, then you have idle men and idle retorts during the light of the moon, unless you are able to use a cheap coal. We have found it profitable to use all the grades of coal given in the above table, though at present we use only Nos. 1 and 4. I believe that by using a mixture of coal in the manner indicated we can save, in the Columbus works, from $2,500 to $3,000 per annum.

Should you buy coal guaranteed to make 5 cu. ft. per pound, and it should prove to make only 4.5 cu. ft., you are entitled to a reduction in price, not of 22 cents, but of 25.8 cents per ton. Should you purchase coal guaranteed to make 4 cu. ft. per pound, and it proves to make but 3.60, you are entitled to a reduction in price not of 15.5 cents, but of 21.4 cents per ton. These suggestions assume, of course, that you have agreed to pay the prices given in the table for No. 1 and No. 4 coal.

Discussion.

The President—This is a valuable and instructive paper. Mr. McMillin will be glad to answer any questions. He has certainly devoted much time and labor to its preparation, and we ought to have the full benefit of its contents.

Mr. Somerville—I have first to thank you, Mr. President and gentlemen, for allowing a Hoosier delegation to sit with you. I am glad to be here. Mr. McMillin's paper interests me greatly. As a paper it is highly creditable to its writer, and will be of great use to many of us. I would like to ask him how he accounts for the increased yield of ammoniacal liquor from that poor coal?

Mr. McMillin—I account for it by the large per cent. of contained oxygen which, at the temperature of the retort, unites with the hydrogen and forms water. We get 12 to 16—sometimes as high as 18—per cent. of water, by weight, out of that coal when it is dry enough to be fired with a match.

Mr. J. M Bate—Does Mr. McMillin get as much gas per retort out of the Hocking coal as he does out of the Youghiogheny?

Mr. McMillin—That question was answered by the statement made in the table as to the cost of the retorts.

Mr. J. M. Bate—I asked the question because I find I can get more gas per bench out of the Hocking than I can out of the Youghiogheny coal.

The President—What kind of Youghiogheny are you using?

Mr. J. M. Bate—Second pool.

Mr. McMillin—I do not question the statement; but I fail to understand how you can obtain as many feet per day from one retort, using coal that will make only 8,000 feet per ton, as you would when using a sort that would give you 10,000 feet. To be sure, some coal gives the gas off very quickly; but I do not find that to be the case with Hocking coal. While the gas goes off very readily from it its tendency to reduce heats by reason of the enormous quantity of water evaporated, more than counterbalances any advantage gained in rapidity of gasification. You are all familiar with the number of heat units absorbed by the evaporation of a pound of water.

Mr. Somerville—I would like to ask Mr. McMillin what is the candle power from the No. 4 coal?

Mr. McMillin—When working off 4 feet to the pound the candle power is about 16. We lose something further there—if we take into consideration the consumers' side of the question. However, the consumers are not as much disposed to complain of a 16 candle gas made from local coals, as they are of a 17½-candle gas made from Youghiogheny coal. That may seem strange; but it shows how easy it is to be mistaken in attempting to make the eye take the place of a photometer. It contains a high percentage of carbonic oxide. The light from the gas is quite white.

Mr. Printz—With reference to Mr. McMillin's formula for reducing the candle power to increase the yield, or in increasing the candle power by reducing the yield—does he allow each to remain at a certain standard temperature, and draw off the charges before the coal is fully coked, so as to obtain the increased candle power as a result of the reduced yield; or does he propose to reduce his heats at the same time?

Mr. McMillin—You might say that each one could "pay his money and take his choice." There are three ways of accomplishing it. First, by heavier charging—the coal will not be so thoroughly coked in the four hours; second, by reducing the heats; and, third, by drawing off in less than four hours. Any one of those three plans will give exactly the same result.

Mr. Somerville—Will Mr. McMillin state how the coke was weighed?

Mr. McMillin—Those figures were arrived at by taking note of the per cents. of coke that we were using. The per cents. are ascertained by drawing the charges directly into the furnace without either weighing or measuring. For instance, if in a bench of sixes we draw the contents of two retorts into the furnace we know that we are using 33⅓ per cent. of the coke product of that bench. Then if the quantity be less or more than that mentioned the style of calculation is still the same. As a curiosity I might say that I now have one stack of benches in which the lower retort is the hottest; the middle vessel is next in temperature; while the top retort shows the least heat. I fail to remember a similar case, and the experience is a most novel one to me. We charge them all alike—the upper retort has the greatest capacity. The percentages of coke fuel that we are using are figured out as explained by me a few moments ago. Of course, we weigh the coke when we wish to determine the value of a coal as a coke producer. We weigh it without quenching. It is drawn into an iron box, and after allowing it to stand for a few minutes we run the box on the scales. The quantity might be slightly reduced by the oxidation of the carbon while hot and in contact with the atmosphere; but, on the other hand, it would be slightly increased by the oxidation of the metallic substances in the ash. I think we weigh it at about the right time to get the exact quantity.

Mr. Jos. Light, of Dayton, now read his paper, entitled—

THE USE AND RELATIVE MERITS OF COKE AND TAR FOR HEATING RETORTS.

Mr. President and Gentlemen:—Several years ago, when in attendance at one of the earliest meetings of the American Gas Light Association, I listened to an interesting discussion on the subject of tar as fuel for the heating of retort benches. On my return home after the meeting I found my tar wells had been filled to such an extent that their contents were actually overflowing into the river. No tar sales could be made, as there was no demand for it. Something, of course, had to be done with it, and I determined to try and burn it in place of coke fuel. Many trials, which resulted in disappointment, brought me to the verge of abandoning the system and declaring it a failure—not a failure as to its heating capacity, but rather because it exacted too much attention. The men complained of the extra labor involved in the closeness of the watch that had to be kept on it.

One of my greatest troubles was to regulate the tar stream at a flow sufficiently small, and next came the bother of causing it to run steadily. It would run along for a short time, and then came a stoppage. I tried many and different devices to overcome that trouble, but none of these seemed to be of benefit. At last the idea occurred to me that if I cleansed the tar from sediment or dirt it would do better work. Here was a difficult problem to solve. It would be a very difficult task to cleanse coal tar when the thermometer was at zero; but I went to work at the job. I tore out all the fixtures which I had previously tried and made my succeeding arrangements on a more permanent basis; or rather, I might say, I had mentally concluded that tar burning had come to stay at the Dayton gas works.

I placed a tank, holding just three barrels, on the top of my benches; and on that tank, and connected with it, I placed a smaller cylinder, the latter being about 18 inches in diameter. On the inside of the cylinder I placed a screen, made in the form of a cone (the large end up), to receive the tar. The clear tar passed through this screen and into the tank, leaving the dirt and sediment on the meshes of the screen.

Perhaps you may think that would be a difficult job to perform in case the tar was cold and thick; and so it would have been with me—for my screen was made out of very finely perforated sheets of tin—were it not for the fact that I placed steam jackets around the tar pipe, and heated the tar so as to cause it to run almost as freely as water would. My arrangement for elevating the tar into the delivery tank was a common hand force pump. The delivery pipe from pump was one inch in diameter, and I ran it through a two-inch pipe, in order to thus secure a steam jacket. When tar was needed in the delivery tank steam was turned on and the pump set at work. Of course, the tar, passing through the pipe encased in the steam jacket, flowed freely. As far as I had gone everything worked well; but the next thing was to feed the tar into the furnace in a small and steady stream. I covered the pipes leading from the tank to the benches with a steam jacket similar to that just mentioned, and this insured a certain delivery of the hot tar to the furnace. The regulation of the size of the tar stream to feed into the furnace was the next problem requiring solution. To my mind the use of a valve for the desired regulation was anything else but a correct plan, and so I cut out a cap, drilling a hole 1-32d of an inch in diameter in its center, to fit the delivery pipe. That cap delivered the tar into a small funnel attached to a ¼-inch pipe, which in turn passed it into the furnace by the aid of a small jet of steam.

The benches at our works are constructed on the plan known as the open setting, with five retorts to each bench, and are designed for the use of coke fuel. When we use tar fuel we place on the grate bars any old plates or castings that we may have in our possession, in order to catch and consume such tar as may fall on them.

In front of the door frame we place a piece of sheet iron, which runs down and dips into the water in the ashpan, thus forming what we might call a damper; and this damper enables us to regulate at will the quantity of air entering the furnace.

Now, as to the relative money value between the coke and tar. When all the circumstances are noted a decided opinion is rather difficult to advance. The tar fuel affords so much more heat than that developed by coke that the surrounding coke benches actually receive a partial benefit from the increased heat experienced when the tar-fired benches are in use. My usual plan is to place a tar-fired bench between two coke benches; and I find a real benefit arises from so doing. If at any time we should run short of tar, we remove the old plates from the grate bars, replace them with coke, and in five minutes time they are coke benches.

A bench of fives at our works consumes say 50 bushels of coke each day of 24 hours, which is about 40 per cent. of the coke product from said bench. Our selling price for coke is 10 cents per bushel, delivered. The coke nets us 9 cents per bushel in the works; and a total of 50 bushels of coke, at 9 cents per bushel, is worth $4.50.

A tar bench consumes 90 gallons of tar (or 1.8 barrels of 50 gallons per barrel) each day of 24 hours. At these figures our tar as fuel is worth to us 5 cents per gallon, or $2.50 per barrel of 50 gallons in our tar wells. We figure that 1.8 gallons of tar will equal the firing duty obtained by the use of one bushel of coke.

Discussion.

Mr. Wood—I would like to ask Mr. Light if he places any fine breeze or coke on the bars?

Mr. Light—We use only old iron castings.

Mr. Wood—I burn tar, and use water instead of steam. We have an open grate.

Mr. Hamlin—When we first began the use of tar we had no exhauster, consequently during the summer months we did not fire our boiler. We, however, put the coil in the bench, and thus generated steam for the tar burning process. Our present tar burning system is similar to that described by Mr. Light, except in the item of steam. When we did employ steam the heats became so great that we had to stop using it. Our superintendent said that we would be likely to "melt down the bench." We are now using a spray of water, in order to get a more perfect combustion; but the plan is not a complete success, although it answers fairly well. The water feed must be looked after carefully. We formerly used a bedding of breeze on the grate bars; but I think Mr. Light's old castings method will hereafter be of great service to us at Wilmington.

Mr. Light—Before we adopted the plan of placing iron scraps on the bars we used breeze, but placed a slight covering of coke on, say, about eight inches of the back ends of the bars. My son said to me one day he thought the men were using up more coke than we had supposed, for he had seen them putting in coke when they should not have done so. I suggested that he watch them for a while, but he believed he could effect a reform in an easier manner. He pulled out the bars, and we ran the tar fires for a while with the bars out. It did not work very well. Then we adopted the plan of putting in the old castings. They soon became red-hot. The tar that drops upon them is consumed, and thus we get the benefit of it.

Mr. Ross—We are burning tar at our works, in Kenton, on the same principle as that described by Mr. Light. I inspected his arrangement, and think that I may have improved on it a trifle. We do not use breeze, coke, castings, or anything else in our furnace; and we do not employ any steam in connection with the tar. We have about ten or twelve feet fall from tar tank to the hole through which the tar is delivered at the front of the furnace. It is carried in by a ¾-inch pipe to within 4 or 5 inches of the bench front. With that pressure the tar can be thrown a distance of four to five feet in a steady stream. The stream is so directed that it strikes one of the bridges between the retorts; it is scattered all around, and is consumed before it strikes the grate bars. If the heats get too high we simply shut off the feed for a few minutes at a time.

The President—Do you have any trouble from burning out the tiles?

Mr. Ross—No, sir. A little black spot may be noticed where the tar strikes, and that is all.

Mr. McMillin—Mr. Light is fortunate in the price that he gets for his coke. I can readily see why it should be profitable for him to burn his tar and sell his coke, when he receives 9 cents a bushel for the latter. At Columbus we get an average of only 5 cents per bushel. Instead of using 40 per cent. of coke, our regenerative furnaces enable us to get along with about 25 per cent. of it. Taking his own results as the basis of figuring, it would not pay us to use tar, even although I can see that it pays him well.

Mr. Ross—Another advantage gained by burning tar instead of coke is in the fact that the waste heat from your benches will enable you to generate steam at trifling expense. Tar heat is most intense.

Mr. McMillin—We are able to get up a pretty intense heat with coke. I once undertook to work the carbon out of a retort with a cast iron pipe; but in 15 minutes the pipe had melted and run down over the retort bottom. That was quite enough heat.

Mr. Ross—I have burned up cast iron, but still did not have a heat high enough for my object. Then I burned tar, and found that to answer the purpose.

[At this point in the discussion Gen. Hickenlooper explained, by means of diagrams and orally, the process formerly employed for burning tar under some of the benches in the Cincinnati works. The speaker asserted the Cincinnati plan was an entire success, and had been operated for a number of years. His experience was that 1¾ gallons of tar produced a heating effect equal to that gained from the combustion of a bushel of coke. Messrs. Ross, Bate (of Tiffin), and others, also took part in the discussion, which was quite animated. When the debate was brought to a close Mr. Canby moved a vote of thanks to Mr. Light, and the motion was agreed to.]

The Chairman now introduced Mr. A. B. Robinson, of Columbus, who read the following paper on the subject of—

GAS COMPANY ACCOUNTS.

The most complete histories of business transactions are probably gained where the basis is associated capital under corporate limitations. This may fairly be regarded as true from the fact that the general scope and extent of the operations to be performed, and the expenses attending such operations, have been the subject of greater scrutiny and nicer adjustment than where one or two individuals endeavor to formulate a theory for the prosecution of a business, the extent of which depends entirely upon the measure of success or failure which results from their effort. But even with the best of talent, intelligently directed, it requires much experience and painstaking application to arrive at a point where difficulties are no longer to be confronted or overcome.

The financial history of a gas company, although it is embraced in the category of associated corporate capital, nevertheless stands out isolated, and, to some extent, unique. Were the demands of a town or city, when a company is organized for the manufacture and distribution of gas, to be known and properly appreciated beforehand, the same rules that are applicable to other large enterprises could be applied; but, in the main, the gas interest has been one of progressive advancement from small beginnings, and developed mainly, at first, by and under the influence of one or two men (other than the owner or directory), in whom are combined the wisdom of the engineer, the skill of the mechanic, and the intelligence of the accountant. He or they are "lords of all they survey; and their right there is none to dispute"—save the ever incredulous gas consumer. He is an ever-present "fly in our ointment;" a spirit we cannot exorcise.

As the years go by the increased business demands more time, more mind, and more money; and the constant series of extensions in the streets, and duplications and additions to the works, are but the type of changes going on in the financial center, whose increased revenues and multiplied disbursements require added labor and increased vigilance.

So far as I am informed the subject of gas company accounts has received very little, if any, attention from the National or State conventions of gas engineers and officers; and certainly it has received none whatever in our Ohio organization. That it should fall to my lot to make the first endeavor to open the way for a discussion on this topic seems strange, and, to some extent, unaccountable. I do not presume to be the possessor of superior knowledge relating to gas company accounts; but, at the same time, from an experience of nearly a quarter of a century with that part of the business of my company, I should be justly chargeable with apathy or stolidity, or both, had I not arrived at some conclusions in reference thereto, and which, in my own mind, I think would be entitled to some consideration. With this preface I will, in as brief a manner as possible, endeavor, in a general way, to indicate a proper method of conducting the financial affairs of a gas company. My first position is that the greatest brevity consistent with perspicuity is desirable in all kinds of business, and especially in a business involving necessarily so much of detail as does ours. I will speak of three different departments of the business, all of which pertain to limited as well as to extensive conditions of gas manufacture.

1st.—The gas works and its tributaries.

2d.—Gas; the product and its auxiliaries.

3d.—Money; its collection and disbursement.

Let me direct your mind to a very common and homely comparison to represent my idea, that of a common carriage wheel. It has hub, spokes, fellies, and tire—the last three joined together, but dependent upon each other, and all dependent upon the hub. As it is put in motion each piece becomes a factor bearing its proportion of the strain, and ministering to the legitimate results of progress and safety. Let this wheel, which we have considered, represent a gas company's plant. The hub shall represent the works—the manufacturing center, in and about which are perpetual and large demands—almost fabulous demands—for money; and about which clusters so much scientific enthusiasm and such patient investigation as to methods and results. This is the great throbbing heart of the whole business, and must be conspicuous in the foreground of our accounts. By reason of its being the principal basis of the primal issue of our stock, it must be kept

clean, and in no case allowed to approach near or into the realm of the illegitimate. As a subject for taxation it will take on decennial valuations according to the conscience or caprice of the assessor, whose conclusions have always defied the powers of mathematicians to formulate or conjecture. It seems only necessary, then, for us to know always exactly what it has cost. We have our works, we will say, erected in such manner that space for future enlargement has been allowed—should there be a demand. We can only conjecture what that demand may be; we must "learn to labor and to wait." Can we formulate a method which shall, while it suffices for small operations, be capable of being expanded to cover the largest practical operations in our domain? "*Hic labor, hoc opus est.*"

The distributing mains come next to be considered as an extension of the works proper—one in essence dual; in fact, in some senses. Unlike your works these are personal property running, by permission, through public domain; and the cost, as a basis for the issue of stock, must be scrupulously maintained. The deterioration must also be calculated and enforced, or it will soon be found that, in gentle April days, the county auditor, or, later, the Board of Equilization, will take the lion's share of our profits, and leave us minus those large dividends which the public so generously award to us, but which we have never seen materialized. While this is a part of the gas works account, I would enter in a separate record, arranged by streets, the size, length and cost, and date of commencement of service. This amount will be placed to the debit of the gas works. In the same manner would the service pipes be arranged, considered and disposed of—the amount being a part of the works. So with the invoices of new meters, connections for service, if furnished by the company. Indeed all that may be considered *primary permanent investment*, and the basis of stock issues, should be embraced in this account. As the works enlarge and the business expands and diverges, like the spokes in the wheel, it gets beyond the immediate supervision of the engineer, and must be given over to the charge of an intelligent foreman; but no change in the method of writing current history for future reference will be required. I have, perhaps, sufficiently indicated my idea on this part of the subject; but that I have so expressed myself as to be understood by my brethren of the Association is not so apparent.

The object of all this expensive array of machinery at the works, this net work of ferruginous conduits underlying our streets and alleys—is the manufacture and distribution of gas. Gas, then, stands over against works as the grand overshadowing account on the credit side. This, it seems to me, should be charged directly with all the expenses of its production, of whatever name or nature, and credited, in the same manner, with its direct and residual sales, all and several. Subsidiary records of amount of coal bought and its cost, coke produced and sold, tar (or products of its distillation) sold, should be kept for statistical reference; yet all should be considered as so many tributary streams finally uniting and mingling in that great reservoir—the gas account.

The basis upon which we calculate the money amounts properly due from the sale of gas is founded on the registration of the meters. It is unfortunate that a machine for this measurement has not been discovered whose indications would be thoroughly accurate; but as this has not been consummated, we must watch all the more vigilantly over the indications we have, and also the location of the machine that gives them. No better plan has suggested itself to me than that of placing numbers on the meter boxes, consecutively, in the line and order of the route traveled by the meter reader—the same numbers being placed on the reader's books, and also the name of the consumer. These, as he proceeds, will be his guides, and assure him that all the ground has been covered. The figures of the index readings are transferred to the register, whereon corresponding names and numbers are placed, subtractions made, and extensions perfected and verified. A duplicate in the form of a receipt is made, compared, and placed in divisions of even hundreds, in the collection case. A notice embracing the name of consumer, number of meter, and amount of bill, is left with consumer (unless otherwise ordered), or in accordance with the route traversed in reading, and properly by the same person. This note is presented at the counter; the receipt, with corresponding name and number, is drawn from the case, stamped or receipted, as the case may be, and handed to the consumer. The results are deposited in readings for the required disbursements among the divisions heretofore indicated, connecting and circumscribing all these operations. Like the felly to the spokes of the wheel comes the alert and watchful general manager, carefully adjusting the stress on each division, and holding all in the firm grasp of his advanced knowledge and experience. Then the directors, as does the tire upon the wheel, hold all firmly, as they meet, consider and overcome the numerous obstacles that are continually presenting themselves in the prosecution of this very interesting and rapidly developing interest whose various departments are—

"— parts of one stupendous whole,
Whose body *gas works* is, and *gas* the soul."

[When Mr. Robinson finished reading, Mr. McMillin declared he thought the author had conferred a favor upon his fellow members by bringing this matter up for investigation. He (Mr. McMillin) had long thought that the subject had been slighted in the past, and he could hardly assign a reason for such seeming indifference. While Mr. Robinson had not entered into details as extensively as might have been desirable, Mr. McMillin explained that possibly the writer intended and expected that the minutiæ would be brought out in the discussion, and he had no reason to doubt, owing to the number of secretaries of companies present at the convention, that an interesting and valuable dialogue would ensue. Mr. Gemuender (Columbus) here said he would like to add a few supplementary notes to the matter treated of by Mr. Robinson. His jottings had reference to the collection of bills, and the reading of same would take up but little time. It was decided that the Association would first listen to Mr. G.'s paper, and afterwards a joint discussion on both contributions—as these were of a kindred nature—could take place.]

(To be Continued.)

Notes from the West.

By Retort.

While the advent of the "circus and its clowns brings forth the budding reformer," it also ushers in the busy season for the gas man, because the nature and extent of the spring repairs and extensions, having been duly considered and arranged, are now being entered upon. With the putting in of new benches, the resetting of old ones, the reception of coal, pipe laying, putting in of services and gas stoves—all of which, in our small works, fall to the lot of the superintendent—keep his hands full, makes "life too short" to admit of his performing many other outside duties. The indications are that in all of the items mentioned, unless it be that of pipe laying, the season will be an unusually busy one. With the very general reduction in prices made in this section of the country comes a corresponding increase in consumption, calling for executive ability to meet the demand with the present capacity, or else to gain that end by increasing the plant. Either case exacts intelligent judgment so that success may be gained.

Our water gas friends are having some trouble with their plants; and the writer has been informed that several of the plants in Illinois are being discontinued as auxiliary apparatus. At Knoxville, Tenn., since the introduction of water gas, a number of serious cases of suffocation have occurred. I am advised that a fatal accident happened there on date of April 9th, when a young farmer named W. W. McCarroll and his mother, Mary McCarroll, from Grant Post Office, Grayson county, Va., arrived in that city and took a room at the Hattie House. Having never seen gas before, McCarroll let it burn all night, but blew it out about noon on the day noted. He and his mother soon became overcome by gas, and when found at 4 o'clock the woman was dead and the son unconscious, and he is yet in a precarious condition.

The St. Louis triple consolidation of gas interests into a gas trust, as foreshadowed in my last letter, has been consummated. The gentlemen composing the Board of Trustees practically arranged all details at their recent two days' session at the office of the St. Louis Gas Company. There are seven members of the board, all of whom were present, except Mr. W. G. Worden, who is sick in Florida. Those who attended were Messrs. Gerard B. Allen, John J. O'Fallon, Charles Parsons, and Chas. H. Turner, of St. Louis, and Thomas Dolan and Henry C. Gibson, of Philadelphia. Mr. Geo. Philler, of Philadelphia, was also present and assisted in the formation of the trust. The following officers were elected: President, Gerard B. Allen; Secretary and Treasurer, Chas. Parsons; Executive Committee, Chas. Parsons, Chas. H. Turner, and Jno. J. O'Fallon. This organization will stand until next October, when the regular Board of Trustees will be elected.

The basis of organization for the present company is $4,169,150, of which amount $3,300,000 represents the St. Louis Company, $250,000 of stock, and $125,000 in bonds, of the Carondelet Company, and $494,150 representing the interest of the Philadelphia syndicate in the water gas company. This valuation represents the actual amount of money expended by the syndicate on the water gas company, and the authorized issue of $1,000,000. The trust proposes that each company shall have its own officers, but that so much of the stock, cash earnings, and dividends of the company as are represented in the trust must be turned over to it. All rights and privileges, patents and franchises are also surrendered to the trust. The trustees vote for the stocks, which they hold by proxy, and will thus elect the board of directors of the several companies. Those stockholders who do not care to enter the trust may draw their dividends direct from the company in which the stock is held. If they wish to sell their stock they can always find a ready purchaser in the Philadelphia syndicate which has established a fund of $500,000 for that purpose. The date when all holders of stock should signify their intention of joining the trust was originally April 15th, but on that date the St. Louis members of the board of trustees extended the date to May 1st, and this action was officially ratified by the board.

SPECIAL ENGLISH CORRESPONDENCE.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, APRIL 10, 1886.

The Ipswich Tar Case.—The Dublin Gas Directors.—New Application of Gas as a Motor.—The South West of England Association of Gas Managers.

A law case, of considerable interest and importance to gas engineers and gas companies at large, has just been decided at the High Court of Justice. The Ipswich Gas Company sued a firm of tar distillers, Messrs. W. B. King & Co., to recover the price of 828 barrels of tar supplied under a contract; and the principal feature in the defence was the plea that the tar was practically valueless. The defendant alleged in evidence that the character of the tar suddenly changed. "He was absolutely unable to keep it in the stills. It would suddenly and violently boil over as if an explosion had taken place, and the distillation had to be stopped as the bottom of the stills had attained a white heat." The manager of the Gas Company, Mr. D. Ford Goddard, refused to recognize this difficulty, alleging that Mr. King had undertaken to buy the surplus tar, good or bad. He told the court in effect that, assuming the company had discovered, since the signing of the contract, a means of utilizing on the works the best and most valuable constituents of the tar, they would be quite justified in sending the defendant the refuse, whether it was utterly useless to him or not, so long as it answered the physical characteristics of tar. And yet he produced a large company of his professional brethren to bear evidence, under the skillful manipulation of the lawyers, to the tune that none of the processes in use at the Ipswich gas works affected the commercial value of the tar. Mr. King, on the other hand, produced equally voluminous evidence to the effect that the tar supplied to him was unsuitable for distillation, being of very high specific gravity, containing a large proportion of pitch, and a correspondingly small percentage of the lighter constituents.

In this respect the case bore some resemblance to a dispute which recently arose in Scotland. The contractor for the ammoniacal liquor at a certain gas works complained that the liquor did not contain as much ammonia in proportion to its specific gravity as was formerly present. The fact was that improved scrubbing plant had been introduced, and the liquor was charged with a larger quantity of sulphuretted hydrogen and carbonic acid, proportionately reducing the ammonia. The parties in this instance took the wiser course of submitting the dispute to arbitration.

As disputes of this nature are continually liable to arise in connection with long contracts upon indefinite terms, it is interesting to notice the method pursued by Justice Grantham in arriving at his decision. Having followed out the facts of the case, he concluded that the tar was sold to the buyer for the purposes of distillation, and not as refuse; that the sellers, while aware that it had been bought for that purpose, were also aware that the consignment in dispute could not be so used; therefore, it could not be said to answer the description of merchantable tar, or the material usually understood by the expression "surplus tar from gas works." Consequently he delivered judgment for the defendants, with costs. Several side questions of an interesting nature were also opened up during the inquiry, such as the value of statistics as representing actual facts, the policy of calling professional witnesses of high authority to support particular views, and the possibility of tar stratifying whilst stored in a large tank, so that a sample taken from the bottom would be of considerably higher specific gravity than one from the top. Perhaps the position taken up by Mr. Goddard was well advised under the circumstances, although it evidently had the effect of turning the scale against him in the mind of the judge; but it was unfortunate, in a professional sense, that the actual cause which led to the delivery of the heavy tar was not brought to light.

It is a pity to let disputes of this kind come before courts of law, nor does it say much for our boasted civilization that legal interference is required to adjust them. If the defendant had been making large profits out of the contract, and in resisting the cause had displayed an avaricious cupidity for more, the aspect of affairs might have been different. In strict legal sense the relative positions of Shylock and Antonio ought not to have any effect. But, in fact, they do; and if Shylock gets his pound of flesh, he is unable to enjoy his victory. It would simply have meant ruination to the tar distiller, had he been compelled, during the remaining five years of the contract, to take a material which according to the evidence of his witnesses was worse than useless. Indeed, assuming that he gets an article in every sense what he bargained for, the agreement will be a most fortunate one for the company and unfortunate for him. And when Antonio is called upon by the relentless Jew to yield up his life-blood in accordance with a perhaps reckless agreement, we find that, notwithstanding the legal aspect, popular opinion is all in favor of the unfortunate merchant. When Shylock, deaf to all pleas for mercy, whets his knife and jangles his scales, depending upon "what's in the bond," then he loses all hopes of sympathy, if he happens to be defeated in his object.

The directorate of the Dublin Gas Company are unfortunate in not agreeing among themselves. I have had occasion to notice, on previous occasions, the disputes between this undertaking and the local authorities, and really the recent *fracas* has been the vehicle for the display of so much acrimony and recrimination on the part of certain members of the board as to offer an obvious theory that is capable of partially, at any rate, accounting for some of these unpleasantnesses. I say unfortunate, because that is the aspect of affairs which presents itself to an onlooker interested in the welfare and advancement of the gas industry; for it is simply disastrous to any undertaking when two of the directors, heading a small clique of shareholders, think it necessary to proceed to such extremes as to issue circulars and other public notifications accusing the remaining directors and the secretary of various malpractices. The singular part of the affair is that the undertaking is in a prosperous condition, supplying gas of high quality at a moderate price, and earning full dividends. It is a common occurrence, when a joint stock undertaking is on the point of ruination, owing to reckless and unskillful management, or unavoidable misfortune, for the board of management to split up into two or more cliques, each opposed to the other, and perhaps seeking to cast the onus of the misfortunes on their opponents; but where all is in smooth water, the bond of mutual interest is usually strong enough to bind the whole body together. A few days before the general meeting, while the discontented clique were busily engaged in preparing something very dreadful for the discomfiture of the remaining directors and secretary, some information they obtained led to the application for an injunction at the High Court of Justice of Ireland, to restrain the gentlemen in question from voting or acting at the meeting, on the ground that they had disqualified themselves by contracting to supply goods to the company, and in other ways. From the affidavits accompanying this application, it appears that most of the charges are of a frivolous and nonsensical character; but they included one of a most important kind, viz., that in consequence of a bad contract the company were losing something like four shillings per ton on the coal supplied to the works, amounting in the aggregate to a loss of several thousand pounds per annum. After hearing evidence and the statements of counsel, the Lord Chancellor came to the conclusion that "the application could not be sustained, and in justice to the parties who had been made the subject of such serious and unfounded accusations, it should be dismissed with costs." At the shareholders' meeting, the two directors who had brought forward this matter were removed from the directorate, and votes of thanks to the directors, and of confidence in the secretary and manager, were passed. So it is to be hoped that, in the interest of all concerned, this unseemly exhibition of feeling will now be healed up. Mr. Cotton has now held the office of secretary and manager of this large undertaking for many years, and been largely instrumental in raising it to its present prosperous condition. His character is blameless, and as to his professional skill, an impartial examination of the accounts previous to his accepting office, as compared with those passed without dissent at the meeting a few days since, affords undeniable evidence that it is of a high order. If treated with the courtesy and consideration which his past services entitle him to expect, and left undisturbed by needless interference, he will not only maintain but still further improve the prospects of this prosperous undertaking. I have heard of a discontented individual who admitted that he was quite well, but thought he "ought to be better," and after reading the above details, am inclined to think that perhaps he lives at Dublin.

A few weeks since, on the occasion of the meeting of the South West of England District Association of Gas Managers, at Ryde, an interesting ceremony took place, in the opening of an electric tramway, the prime source of power being a 12-horse power gas engine. The railway is half a mile long, of ordinary gauge, and supplied with two tram-cars of ordinary pattern. Under one of these is an electric motor machine, having a sliding contact with a positive conductor carried along one side of the rails, and the latter serve to take the return current. An elegant engine house contains a dynamo machine and the engine, all resplendent with paint and gilding so as not to appear in any way unsightly to the pleasure seekers in this well-known fashionable watering-place, and is situated at one end of the track, which extends along the pier. The machinery having been duly inspected, the two cars were loaded with five or six tons of the gas engineering *elite* in the South West, and an experimental trip was run. A handle for the use of the driver is situated at each end of the cars, so that they may be driven from either end, and the signal "all aboard" having been given, the man in charge simply gave his handle a quarter turn, and off went the cars, running evenly and smoothly to the other end, where another quarter turn of the handle brought them to a standstill within six yards, without shock. The consumption of gas being well known, it is evident that for short lines of railway carrying light loads, this system will compete favorably either with steam or horse power. Mr. Alexander Siemens, of the well-known firm of Siemens Bros., who have supplied and erected the necessary electrical plant, was amongst the party; and was subsequently congratulated on the successful working of the arrangement.

Our little South West Association is rapidly increasing in numbers and influence, and its meetings are always well attended. The party at Ryde, including several visitors, numbered about 70, and spent a very pleasant day, thanks in great part to the hospitable endeavors of Mr. George Garnett, the president. Assembling at the gas works, which are under the management of the President, the first thing was a general inspection, after which there was a brief adjournment to the meter house, where light refreshments were laid out. Then came the business meeting, in which the principal features were an address from the President, dealing with the education of gas engineers, and a paper by Mr. W. A. Padfield, of Exeter, on "The Development of a Gas Company's Business," followed by a discussion. Afterwards the visit to the pier as above mentioned, and lastly an elegant banquet provided by the president. Add to this that the gathering was held at a pretty seaside town, and I think your readers will agree that we have every reason to be satisfied with our "day at Ryde."

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

Cheaper Gas for Springfield, Mass.—On April 24 Mr. J. L. Hallett, Supt. of the Springfield Gas Light Company, was authorized to make publication of the fact that a considerable cut would be made in selling rates; and one of the best features of the announcement was contained in the determination to cause the "cut" to assume the nature of "retroactive legislation," inasmuch as the same took effect on all quantities consumed from date of 1st ult. The new gross figure has been placed at $2 per thousand—a reduction of 30 cents; and a discount of 5 per cent. will be allowed on all bills settled on or before the 5th day of month in which they are presented. In cases where the bills average $150 and upward per quarter a discount of 10 per cent. becomes operative. Net rates of $1.90 and $1.80 per thousand ought to create a "boom" in gas matters at Springfield; but Brother Hallett will hardly mind how high the send-out goes—even should he have to put up another holder. Before taking leave of Springfield we might add that the celebrated tramp meter tester—Mr. Wilsdon—has turned up in Brother Hallett's district, but the "itinerant" does not appear to have had a brilliantly successful season there. The visitor made some "tests" on several meters belonging to or in use by certain of the "chronic kicker" class, and, of course, Wilsdon reported the instruments as samples of the "fast" sort. Mr. Hallett subsequently re-examined the meters which had passed through the "expert's" ordeal, and the net showing made thereby was to the effect that the "fast" meters were, on an average, really 3 per cent. slow. It is not easy to understand why ordinarily intelligent gas consumers will employ and pay for the services of a fellow like Wilsdon to test their meters when they can, without expense, obtain an accurate examination of the same at the hands of the gas people of their own cities and towns. Indeed, the apparent idiocy of the proceeding must probably be attributed to "sheer cussedness." General Hickenlooper, of Cincinnati, Ohio, "could a tale unfold" in regard to the business probity of the intinerant meter prover; and it is quite time that such brazen frauds were reduced to a condition of "innocuous desuetude"—a result best achieved by handing them over to the tender mercies of a justice of the peace.

A Correction.—In our issue for April 2d it was stated that Mr. W. H. Levings resigned the Superintendency at Paris, Ills., in order to take charge of the Minneapolis (Minn.) plant. While Mr. L. did leave Paris to go to Minneapolis, his connection with the last-named company is in line with its executive department instead of on the works proper. This correction is due to Mr. Elbert as well as to Mr. Levings, and our error is traceable to a statement contained in the Paris *Gazette*. We are sure that both Messrs. Elbert and Levings will acquit us of negligence, as the *Gazette's* item admitted of but one inference.

Amending the Charter of the Pawtucket (R. I.) Gas Company.—The Legislature of Rhode Island has authorized the Pawtucket Gas Company to engage in the business of supplying electric light. The bill for the amendment of the company's charter is numbered on the House register as 1369, and the enacting section is as follows:

"In addition to the powers heretofore conferred said company is authorized to engage in a general electric lighting, heating, and power business; that is to say, the business of producing, using, and supplying light, heat, and power generated by means of electricity, and for the transaction of any business incident therewith and the distribution thereof through the streets and highways, shall be under the same conditions and with the same privileges and to the same extent as are by law applicable to the distribution of gas by said company."

The Same Thing was done at Evansville, Ind.—An Ohio correspondent writes us that the process described by Mr. Boardman (see Mr. Boardman's letter in issue of April 2d) was used in Evansville fully six years ago. While we are always glad to know that these things did happen "years ago," we are nevertheless "gladder still" to have those who witness similar operations, as at present conducted, inform us regarding the particulars and details of how the work is prosecuted.

The Portage American Gas Company.—Some time since Mr. C. E. Gray and his associates obtained a franchise from the Portage (Wis.) Common Council giving them the right to erect and operate a gas plant in that town. The concession carries with it an exclusive privilege covering a certain number of years, and the water gas speculators were exceedingly anxious that Mr. Gray should allow them to enter upon the ground floor. They would build the works, etc., etc.; but friend Gray knows a good thing when he sees it. As coke is worth 10 or 12 cents a bushel in that locality, and good gas coal comes pretty cheap, the owner of the franchise thought coal gas would do pretty well; and consequently the aid of Eastern capital was invoked. The enterprise was brought before the notice of the American Gas Company, of Phila., Pa.; and although that corporation was hardly in working order, its managers investigated the matter and speedily decided to take a hand in the affair. At a special meeting of the Portage Common Council (held April 14) the franchise granted to Mr. Gray was transferred to the gentlemen representing the American Gas Company, with the understanding that the transfer should become valid and binding immediately upon passage of the ordinance. At 7 P.M. of April 14 articles incorporating the American Gas Company were filed with the Register. The articles named Messrs. C. E. Gray, J. B. Taylor, and M. T. Alverson as incorporators; and the capital stock was placed at $40,000, divided into 400 shares of a par value of $100 each. Forty per cent. having been paid in in cash, the stockholders effected a permanent organization by electing M. T. Alverson as president, C. E Gray as Vice-President; and A. D. Cressler as Secretary and Treasurer. Eleven lots of ground in the block known as 222, and adjoining the St. Paul railroad track, were purchased as a site whereon to construct the works, and active building operations will be instituted at once. Portage (or Portage City, as it is sometimes called) is the capital of Columbia county, Wis., and is located at a point from whence branch out three arms of the Chicago, Milwaukee & St. Paul railroad. It is also on the line of the canal which connects the Wisconsin and Fox rivers. It is 30 miles north of Madison, and may be easily reached from any section of the States. It already has large manufacturing interests, and bids fair to become a place of some importance. A six-inch plant will be constructed.

Election of Directors.—At the annual meeting of the stockholders of the East Albany (N. Y.) Gas Light Company, Messrs. F. A. Sabbaton, C. F. Hetzel, Jr., G. G. Cox, H. A. Brooks, N. R. Wilbur, and J. H. Miller were elected to the directorate for the ensuing year. Organization proceedings resulted in the choice of Mr. F. A. Sabbaton as President, and Mr. G. G. Cox as Secretary.

The Alta Manufacturing Co., of Boston, Mass., Rather Overdoes Itself.—The Alta Manufacturing Company does not appear to be very scrupulous in the means and methods under which it tries to dispose of its wares, as witness the following letter to us from the chemist of the Boston Gas Light Company, in regard to the Alta Company's latest dodge:

"Boston, Mass., April 18, 1886.

"To the Editor American Gas Light Journal:—The Alta Manufacturing Company, of this city, issue a circular wherein is given what purports to be the results obtained by me in testing a certain burner made by them. As I am assured, by those who ought to know, that the statement spoken of is having some influence favorable to the introduction of the burner, I venture to ask the privilege of stating in your columns that no such favorable results were shown in my tests of the burner; on the contrary, no advantage whatever was found to follow from the peculiar construction adopted.

"Yours respectfully, D. S. Lewis."

If other experts would only condescend to adopt the simple means above taken by Mr. Lewis, in regard to the false statements made by the Alta Company, the days of the humbugging "patent regulator" and "improved gas burner" peddlers would be numbered with the things that were. Mr. Lewis has our thanks for his straight denial, and the gas men throughout the country may be trusted to put his letter to good use.

The Waukesha (Wis.) American Gas Company.—The American Gas Company, of Philadelphia, Pa., has also become interested in the matter of supplying gas to the inhabitants of Waukesha, which place may now fairly be denominated the Saratoga of Wisconsin. The waters of the famous Bethesda, Clysmic and Silurian springs are shipped to every section of the country, and enormous quantities of the liquid are consumed. All of those springs, as well as many others, give out their liquid treasures at various points within the once village of Waukesha, and one effect of their fame has been such as to cause the erstwhile village to assume the proportions, and take on the importance of a busy, bustling town. It already boasts of the

possession of 20 handsome hotels—some of them are really elaborate structures—which hardly serve to accommodate the throngs of visitors who crowd the place in summer. Last year it is certain that over 4,000 people availed themselves of its advantages as a healthful summer resting place; and it should be borne in mind that the larger proportion of the aforesaid 4,000 visited the resort in June, and did not make the homeward flight until the following September had approached the verge of October. The resident population of Waukesha may be put at 5,200 souls, and several large factories (operating in woolens, farm implements, etc.) are daily adding their share of finished goods to the commerce of the country. Putting one thing with another it is, therefore, not to be wondered at Waukesha needed gas light, nor is it strange that Messrs. Gray and Cressler (who happened to know something about the place) felt themselves called upon to "minister to the long-felt want." As stated in the item referring to Portage, Mr. Gray, upon procuring the franchise, applied to Eastern capitalists for substantial aid, and the capitalists responded quickly. The franchise was amended so as to secure the title of the new company to become vested in the Waukesha American Gas Company. The capital stock was placed at $60,000, and the directors selected Mr. A. G. Frame (President of the Waukesha National Bank) to be their chief executive officer, with Mr. C. E. Gray, Vice-President, and Mr. A. D. Cressler, Secretary and Treasurer. A site was selected and plans were prepared—these latter show that an eight-inch plant is to be constructed, and that the initial distribution system will embrace the placing of over four miles of pipe. It is expected to have the new plant in operation by the 20th of September. Waukesha is the capital of Waukesha county, and is on the Fox or Pishtaka river. The Milwaukee & St. Paul railroad passes through it. It is 20 miles west of Milwaukee, and 75 miles east of Madison. It might be added that a new branch of the Wisconsin Central railroad, running from Chicago, Ills., to Ashland, on Lake Superior, is now being constructed; and it is presumed that the branch route will be in active operation by the first of June, thus furnishing Waukesha with still another high road, whereon the seeker after summer pleasure may easily find his way to the "city of springs."

Cheaper Gas for Newton, N. J.—Mr. F. J. Swayze, Sec. and Treas. of the Newton Gas Light Company, writes us that gas rates have been reduced. The new schedule is as follows, and became operative on quantities registered from date of 1st ult.:

Less than	5,000 cu. ft. per month.....	$3.00 per M.
	5,000 to 10,000 cu. ft. per month....	2.75 "
	10,000 cu. ft. and over "	2.50 "

The old rates were the following: Less than 1,000 per month, $4; over 1,000 and less than 3,000, $3 60; over 3,000 and less than 10,000, $3.20; 10,000 and over, $3. It will be perceived that a decided rebate has been granted, and no doubt the effect of the new departure will be speedily seen in a marked increase in output. The Newton company's annual make is in the neighborhood of, say, one and one-half millions cubic feet; but if its managers adhere to the cheap sale plan the output will soon be doubled.

Branching Out.- It is understood that the Flatbush (L. I.) Gas Light Company will increase its distribution facilities with the intention of supplying gas to two, or possibly three, of the adjoining hamlets. We have no hesitancy in saying that those who are in control of this company have a veritable bonanza in their possession. Not to make any mention of its present business, its future possibilities are of the brightest kind.

The Price and Number of Street Lights in New York City.—The following figures show how the contracts for street lighting in New York city during the current year were awarded, as also the number of lights awarded to the different bidders:

Gas Companies.	Price per Lamp.	No. of Lamps.
Consolidated.....	$17.50	17,570
Mutual.....	17.50	208
Equitable.....	12.00	1,665
Central.....	28.00	2,240
Yonkers.....	30.00	337
Northern.....	30.00	1,660
Electric Companies.	**Price per Arc.**	**No. of Arcs.**
United States.....	$255.50	362
Brush.....	255.50	348

In addition to those the N. Y. and N. J. Globe Gas Light Company maintains 50 naphtha lanterns in the district known as Woodlawn Heights, at an annual charge of $25 each. The Central, Northern and Yonkers companies supply those lamps which are located in the division of the city known as the "annexed district." The conditions under which the gas supply is maintained in that section are so onerous that the discrepancies between the rates there charged and those which rule in the city proper are more apparent than real. It will be noted that while the Equitable Company is nominally anxious to supply the city with light at the rate of $12 per post per annum, the anxiety hardly extends to the actual carrying out of the work, as the beggarly total of 1,665 posts amply proves. The electricians appear to have progressed in about an even ratio, and no doubt would like to amplify their totals; but a general impression prevails that no important extensions of the arc system will be made this year. Perhaps, when certain of the office-holding patriots dispose of their shareholdings, in the electrical enterprises above mentioned, it may dawn upon them that $255.50 per light per annum is a rather steep price in which to mulct the city's treasury. However, until the "innocent investor's" name appears upon the transfer ledgers of the electric companies, it is safe to conclude that the present compensation will not be deemed an extraordinary one by those in charge of the city's interests!

Another Gas Man on the Rostrum.—Mr. Jas. D. McIntyre, Secretary of the Yonkers (N. Y.) Gas Light Company, recently delivered a most interesting lecture (before the Young Men's Christian Association of that city) on the subject of gas lighting. Secretary McIntyre handled his subject with fluency and ease, and held the attention of his auditors with pleasing sureness. From the historical portion of his address we extract the information that "The Yonkers Company was organized in April, 1854, and began to supply gas in same year. The total receipts of the first year were but $4,000. Only three of the original incorporators are now living—Messrs. R. P. Getty, T. C. Cornell (now President of the Company), and J. Olmsted. From 1854 to 1861 gas was sold at $4 per M.; from 1861 to '64 the price was $3.80; in '64 the price was successively $4.50, $5, and $5.75; in '66 it was at $5; in '70 at $4.50; in '74 it was at the starting point once more—$4; in '75 it was down to $3.50; and, chiefly owing to the attacks of the raiders, it is now at the 'fighting price' of $1.25"—where, we may add on our own account, it will remain until the oppositionists become weary of losing money. It is likely, though, that were all opposition to cease, Yonkers folks would obtain their gas supply at or below $2 per thousand. We do not know whether or not the occasion of the Yonkers speech was Mr. McIntyre's "first appearance on any stage;" but we do know that it was spoken like a veteran.

Mr. Kelly's Estimate of the Value of his Vote.—Mr. W. F. Kelly has hitherto been a "valued" member of the Bradford (Pa.) Common Council, and his brother members have been endeavoring for some little time back to find out just how "valuable" he was. The "endeavor" assumed the shape of an investigation by a special committee of the Council, and some very interesting testimony was developed. The charge was that Kelly had offered to sell his "vote and influence" in the Council to the Bradford Gas Light and Heating Company, to the end that the latter corporation might keep the field of natural gas supply in the city of Bradford free from the intrusion of competitors. Mr. C. E. Hequembourg, President of the Gas Company, swore that Kelly had on several occasions offered to sell his (Kelly's) "influence" in preventing the granting of opposition ordinances by the Council. His "influence" was rated (by himself) to be worth $5,000. Others also testified to Kelly's willingness to be "convinced" on a similar basis. Kelly defended himself by asserting that Mr. Hequembourg had made the proposition to pay the Councilman a salary for attending to such matters in the Board. Kelly must have had great nerve to make such a charge against the Bradford Gas Company's "big president;" but it is safe to assume that the "big" man was not present when Kelly was testifying. On April 19 the investigating committee returned a report charging Kelly with "misbehavior in office;" and it is more than probable that the days of Kelly's "value" as a Councilman are about over—at least as far as Bradford is concerned. We might, however, throw out a straw which may tide him into other councilmanic waters, and we herewith venture the suggestion that Hillsboro, Ohio, is not over-particular in such matters.

-If the "Pole" Specifications are Modified.—About the middle of last April the Troy (N. Y.) Contracting Board received a proposition from the local electric lighting company to the effect that it would undertake the street lighting, at a charge of 47 cents per light per night, "providing the specifications in regard to the poles were modified somewhat." It appears the Contracting Board allowed the "modifications," and authorized the electrical company to maintain 250 lamps at the stipulated price of 47 cents each. We are unaware as to whether or not some higher authority has to ratify the Contracting Board's action before the award is made binding on the city, and have not received any later advices in regard to the affair.

A Nashville (Tenn.) "Scientist."—Certain parties in Nashville are evidently desirous of giving the old Nashville Gas Company a black eye regardless of the fact whether their pugilistic intent is just or unjust; and it is almost superfluous to add that the Council chamber is the arena in which most of the ring work is done. Councilman Quintard Jones (by the way, that is a sad termination to a name which opens out with such a *recherche* handle) is

one of the leading pessimists, and he thought it would be a good idea if he had a "delicate" series of photometric tests made of the candle power of Nashville gas. With Jones, to think is to act, and he hied off to Prof. J. M. Kelley, who, besides being "instructor in analytical chemistry to the Vanderbilt University," is chemist-in-chief to the National Fertilizer Company. The analyzer of manures, of course, could not be squeamish over the matter of the bad smell of gas, and he buckled to with a will. In January he made tests during ten consecutive days, with a net result that the average of the ten gave the gas a stated illuminating value of 10.97 candles. His next effort saw the light as it appeared on seven consecutive days in March; and the figures this time revealed an illuminating (average) value of 13.96 candles. He strung together some high-sounding phrases, adjusted his figures, handed them in to Quintard Jones, Esq., and Jones sprang them (the tests) on the Council. In the meantime the official gas inspector (Mr. Robertson) appeared quietly on the scene and presented some tests made by him on the identical days in March corresponding to those of the fertilizer Professor. Mr. Robertson's figures showed an average illuminating value in the gas of 15.95 candles; and the inspector further explained that his esteemed colleague's surprising results were very likely to be traced to the fact Prof. Kelley had employed a toy, catalegued on the lists of school supplies as a "Bunsen Photometer." He had also impressed into the test manipulations an ordinary four-foot, lava tip, Empire bulb burner. His apparatus had neither governor, clock, nor candle balance, but yet he had the hardihood to put forth as correct the guesses which he had made in regard to the lighting value of a product supplied by a company whose managers were expected to comply with all lawful regulations in the conduct of their business. Mr. Quintard Jones' surprising revelations were shorn of their intended effect, and Prof. Kelley (possibly unnerved) now calmly pursues the even tenor of his way—dividing his valuable hours betwixt the scholars of the University and the manure heaps (or vats) of his other patrons who control the odoriferous fortunes of the fertilizer company.

Cheaper Gas for Rockford, Ills.—"Our sons their fathers' fading footsteps see," is a line applicable to many of the younger generation of gas makers; and Mr. William Butterworth, of Rockford, is one of those who are content to follow on in the way marked out for them by their prudent and progressive ancestors. Mr. Butterworth's father was among the first to appreciate the true business tact involved in liberal dealing with gas consumers, and we are glad to know that his son intends to keep up the good work. In proof that the advanced policy is to be maintained at Rockford, we submit the following schedule which went into effect on the first ult. The gross rate is fixed at $2, prompt payment making the discounts obtainable:

Per cent. off.		Cu. ft. per month.	Net rate.
10,	if over	500	$1.80
12½	"	2,000	1.75
15	"	5,000	1.70
20	"	20,000	1.60
25	"	50,000	1.50

Mr. Butterworth intends to give close attention to the matter of developing an increase in the number of gas cookers to be used during the coming summer, and we would call the attention of our Southern readers to the fact that over 300 gas stoves are now in duty at Rockford. Before taking leave of Rockford we may say that Mr. Butterworth has been chosen to fill the vacancy, created through his father's decease, in the Board of Trustees of the Rockford Hospital Association.

Correspondence

[The Journal is not responsible for the opinions expressed by correspondents.]

How a Leaky Holder Tank was Cured.

Vassar College,
Poughkeepsie, N. Y., April 21, 1886.

To the Editor American Gas Light Journal:

I have read with great interest in the April 2d number of your Journal an account of the proceedings of the New England Association of Gas Engineers. Having had considerable experience with a leaky gas tank, I venture, under the inspiration of the papers and remarks contained in the issue of the Journal above referred to, to give you a little account of our amateur efforts in the premises.

From the beginning our tank has leaked; the trouble gradually increasing until latterly we could scarcely get sufficient water from the heavens above, or the earth beneath, or the waters under the earth to keep it filled. The walls of the tank were strong enough, but the fundamental mistake was to construct it on a side-hill, in that there was not sufficient backing-up on the lower side to resist the immense pressure. The first result was that the wall cracked from top to bottom; then another crack appeared; and latterly a third one presented itself. The combined effect of the three fissures allowed large quantities of water to escape every 24 hours. As the years passed we tried about every expedient to stop the leak, but without accomplishing it. Heavy brick piers on the outside, and on the inside horse manure; cement; chipping out cracks and putting in new bricks; running in melted lead and caulking it; getting mad at it, and letting the bothering thing go for time to remedy in some way. I thought of a twisted chain around the outside, but not of a shrunken iron band. Perhaps that would have answered, but the remedy adopted was much cheaper and quite as effective—so far at least; and I will now proceed to describe the plan, as it may be a valuable suggestion to some of the fraternity.

The problem to solve was to stop those three cracks, which when the tank was empty seemed very small and insignificant; but under the pressure of the water, as the tank was filled, they would widen up so that we would have but a broken cistern holding no water. Also, to provide for any greater receding of the bank and allowing the wall to go still further out. (I think the main reason why inside cementing and caulking does not answer is because, when the pressure of the water is on the wall, the cracks are much wider than when the tank is empty—the only time we can get at them to do any work.)

This is what we did at last—if we had resorted to it at the beginning a good deal of money would have been saved: We took wide strips of extra heavy duck or canvas, and filled them as full of paint as would dry in. This canvas we put over the cracks, lengthwise of course. The edges were fastened to the wall by thin strips of wood, 3 inches wide, and nailed securely. Between the edge of the canvas and the wall white lead was placed, as also between the canvas and the wooden strips. The outer edge of the two we puttied up with red lead and litharge. After this was thoroughly dry we covered the strips and all the surface of the canvas with a coating of coal tar and vegetable asphalt, boiled together in such proportion as upon experiment we found would not either crack or run, but remain ever elastic. Now comes the important part—to provide for the wall moving, and consequent widening of the cracks as the water was let in. The canvas was nailed on very slack, sideways, allowing a possible play of two or three inches in the material across the crack. This did the business, for on filling the tank the cracks all widened, as we could see from the outside; but there was sufficient slack in the material to permit it, and so there was no tear. As the canvas is watertight, there are no appreciable leaks, and none have appeared during the eight months since the work was done. All this was accomplished at but slight expense. Yours truly,

Benson Van Vliet, Gen. Manager, Vassar College.

Flood and Fire at the Selma (Ala.) Works.

Office of the Selma Gas Light Company,
Selma, Ala., April 16, 1886.

To the Editor American Gas Light Journal:

Transmission of the mails between this point and other sections of the country having suffered temporary interruption, your letter of the 5th did not reach me until evening of the 11th inst. In reply I will give you a brief *resume* of the chapter of accidents lately visited upon us.

The month of March was signalized by almost continuous rains; but near to the close of its last week the volume of water that had fallen did not cause either uneasiness or damage. On the evening of Sunday, March 28th, the rain began to fall in earnest, and the downpour continued, without intermission, during the night and the following 48 hours. Over 11 inches of water fell during the last mentioned days. On Monday (March 29th) the Alabama river was considerably swollen, and the rise continued until the river overflowed its banks. The maximum height was attained when an altitude of 60 feet above low water mark was reached, or five feet higher than that shown by any other previous record. On Tuesday (April 6th) the waters began to fall slowly. On Wednesday (March 31) the water had reached our yard, and I was obliged to remove my horse from the stable. Early on Friday (April 2) the water stood high enough in cellar of purifying house to flood the centerseal, and gas making was stopped. At 10 A.M. of same day the water had risen to and overflowed the tank. The holder being full I was obliged to allow some of the gas to escape. Not having the slightest idea that the flood would rise to the height of the furnaces, I had given directions to keep the fires up; but as the "best laid plans of mice and men gang aft aglee," at 10 P.M. of our "black Friday" every fire in the place was quenched. On Saturday morning (April 3) the only means to reach the works was by boat. Keep in mind the fact that at this time everything was covered over with water to a depth of two feet. In an annex to the coal shed 15 barrels of stone lime were stored. When the water reached the lime of course slacking set in, the barrels were ignited, and the shed was fired. At 11 A.M., on same day, the works were discovered to be on fire. The coal sheds were destroyed, also the retort house roof, and every inflammable portion of the exhauster room and office as well. No damage was done to the machinery—it was completely protected by the waters of the Alabama river.

Nothing could be done until Tuesday (April 6), when men were set at work to clear away the debris; and as soon as the waters had receded sufficiently slow fires were started in the furnaces to dry out the benches. Some of the retorts were badly cracked, and all of the settings were well water-soaked. I at once began rebuilding the coal sheds; covered the office and exhauster room with new roofs, and also placed a temporary roof on the retort house—the latter to serve until such time as an iron roof (already under construction) could be received and placed. Everything was cleaned up and in good working order by date of Monday, April 12th; and that evening saw the darkness dispelled. Tallow candles and kerosene lamps were quickly banished to the recesses of dark closets, and the city was once more lighted with gas. Nine days only had elapsed since our fires were put out by the floods; next came the conflagration; and then followed four days of enforced inactivity retarding repairs. In reality, everything necessary to recover from the disastrous effect of flood and fire was accomplished in five days; and only the remembrance of what has been remains with us to-day.

Yours truly, H. Harthan, Sec'y, and Supt.

The Market for Gas Securities.

As predicted in our last market report Consolidated gas shares suffered a decline in nominal market value, and we must confess that the shrinkage assumed greater proportions than those calculated upon. Towards the close of week ended April 24th the weakness was strongly marked, and a veritable panic was in full headway shortly after opening of board on Monday, April 26. Sales were made on that date at 95—the lowest point touched; but free purchasing caused quotations to react to 100½, which was closing price on that day. On Tuesday the course of fluctuation was confined within narrow limits. On Wednesday renewed weakness set in, and to-day (Thursday) the market is excited and weak. The shares opened at 96, fell to 95½, reacted to 96½, and broke once more to 95¼-95½, the last being the noonday figure. Our quotation in regular list will furnish closing prices of Thursday, April 29th. The decline of to-day is, of course, to be attributed to the legislative action at Albany taken yesterday afternoon and evening.

The Assembly, after postponing action on the several bills—it looked as though the members were "waiting to hear something"—finally passed the entire lot. We must now await the action of the Governor; but, judging from the Executive having allowed the Standard charter to become a law through pursuing a course of masterly inactivity in regard to it, we fear the courts will have to be called upon to settle the question as to whether or not the McCanns, Reillys, Murphys, and the other $1,500-a-year legislators have a lawful right to determine at what price the products of manufacturing companies in this State are to be sold. We can only say now, Keep your shares; they are good things to have, and good things to hold.

Mutual is weaker, and so is Equitable; 25 shares of last-named, at auction, April 28, brought 156. Telegraphic advices state that the Committee on Manufactures, of the Massachusetts Legislature, refused to amend the carbonic oxide law. The vote in Committee was 7 to 4.

Gas Stocks.

Quotations by Geo. W. Close, Broker and Dealer in Gas Stocks.

16 Wall St., New York City.

May 3.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

	Capital.	Par.	Bid	Asked
Consolidated	$35,430,000	100	95½	—
Central	440,000	50	70	—
" Scrip	220,000	—	47	57
Equitable	2,000,000	100	155	—
" New Stock			150	155
" Bonds	1,000,000	—	107	110
Harlem, Bonds	170,000	—	—	—
Metropolitan, Bonds	658,000	—	113	—
Mutual	3,500,000	100	133	135
" Bonds	1,500,000	1000	104	107
Municipal, Bonds	750,000		—	—
Northern	125,000	50	50	—
" Scrip	108,000			
Yonkers		50	51	55
Richmond Co., S. I.	300,000	50	—	92
" Bonds	40,000	—	—	—
Gas Co's of Brooklyn.				
Brooklyn	2,000,000	25	125x	—
Citizens	1,200,000	20	86	87
" S. F. Bonds	320,000	1000	106	110
Fulton Municipal	3,000,000	100	157	—
" Bonds	300,000		104	108
Peoples	1,000,000	10	83	85
" Bonds	290,000	—	106	107
" "	250,000	—	103	—
Metropolitan	1,000,000	100	98	100
Nassau	1,000,000	25	132	133
" Ctfs	700,000	1000	101	102
Williamsburgh	1,000,000	50	158	—
" Bonds	1,000,000	—	112	114
Out of Town Gas Companies.				
Buffalo Mutual, N. Y.	750,000	100	85	90
" Bonds	200,000	1000	95	100
Citizens, Newark	918,000	50	115	120
" " Bonds.	124,000	—	105	110
Chicago Gas Co., Ills	5,000,0000	25	130	140
Peoples G. L. & C. Co., Chicago, Ills	3,000,000		8	12
Cincinnati G. & C. Co.			184	187
Consolidated, Balt.	6,000,000	100	47	47¼
" Bonds	3,600,000		107	107½
Chesapeake, Balt.	1,500,000	100	78	79
"	1,000,000		100	102
Central, S. F., Cal.			67	—

Position Wanted

By a man who has had a long experience in the building and economical management of coal gas works. Was manager of a coal gas works for nine years, and paid the stockholders six per cent. annually. The works for sixteen years previously had not paid running expenses. Can give ample references. Address

645-1 "GAS ENGINEER," care this Office.

SITUATION WANTED

As Superintendent of Gas Works.

Has filled the position of engineer and superintendent of gas works for eight years. Understands the manufacture and distribution of gas, laying mains and services, the fixture and fitting business, and keeping accounts. Good references given.

Address GEO. M. McCONAUGHEY,
Care Austin Gas Lt. and Coal Co., Austin, Texas.

WANTED,

A POSITION AS SUPERINTENDENT OF GAS WORKS.

Has had fifteen years of practical experience in running same. Thoroughly acquainted with the various water gas processes. Can furnish best of references. Address

644-2t "G. W. V.," care this Office.

Position Desired

AS SUPERINTENDENT OF GAS WORKS,

By a man thoroughly familiar with all branches of the business of manufacturing and distributing both coal and water gas. Has had an experience of 21 years. Excellent recommendations.

644-4 Address "J. W.," care this Office.

FOR SALE.

Second-Hand Gas Apparatus.

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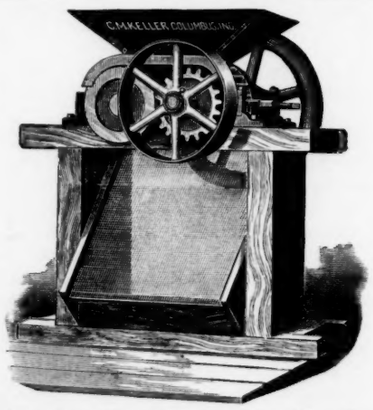

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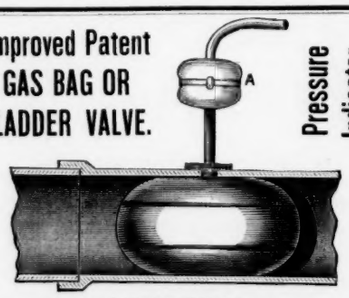

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